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ABSTRACT

A survey was conducted in 1988 of the 14 secondary schools in Missouri and 7 schools in North Dakota involved in German I by Satellite from Oklahoma State University. Questionnaires mailed to each district included forms for the administrator responsible for initiating the program in the schools, the program coordinator, each student enrolled in the course, and the parents of each student enrolled. In addition, students were given a standardized German test. Specific issues addressed include: (1) variation in student characteristics, student success in German, and attitudes of students, parents, administrators, and coordinators among schools and between states; (2) variation in course implementation procedures among schools and between states; (3) cost comparison of schools implementing German by Satellite in Missouri and North Dakota; (4) the influence of course format (live versus taped) on course implementation methods, student success rates, and student and parent attitudes; and (5) administrator and parent attitudes toward the future of instruction by satellite. Data are presented in tabular form throughout the report. (GL)

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DISTANCE LEARNING EVALUATION STUDY

REPORT II:

AN INTER - AND INTRA-STATE COMPARISON

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REPORT II:

AN INTER - AND INTRA-STATE COMPARISON

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DISTANCE LEARNING EVALUATION STUDY REPORT II:

AN INTER- AND INTRA-STATE COMPARISON

A STUDY OF NORTH DAKOTA AND MISSOURI SCHOOLS IMPLEMENTING GERMAN I BY SATELLITE

A Study Financed in Part by

Mid-Continent Regional Education Laboratory
Denver, Colorado

in conjunction with the

Departments of Agricultural Economics
and
Practical Arts and Vocational-Technical Education
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of
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DISTANCE LEARNING EVALUATION STUDY
REPORT II

AN INTER- AND INTRA-STATE COMPARISON

INTRODUCTION

The 1987-88 school year marked the real beginning of the distance learning movement in both Missouri and North Dakota. From a total of three districts in 1986-87, grew 14 adopter districts in Missouri and seven in North Dakota, leading the way for the future widespread adoption of instruction by satellite in both states.

Several reasons existed for the upsurgence of instruction by satellite in rural schools. The technology was imminently appealing to small districts who had been unable to provide advanced science, math, or foreign language courses where enrollment numbers were too low to justify the hiring of a teacher. In other cases, a part-time teacher certified in the instructional area was simply not available. A third problem incurred by some districts was the inability to find a multipli-certified teacher who matched the instructional needs of the district. Perhaps less admirable were the motives of still other districts who were enticed by the appearance of "buying a solution" or by the opportunity for "showcasing" the technology.

The rapid adoption of instruction by satellite in both states offered a unique opportunity to study the implementation and initial operation of an educational technology in its infancy. Furthermore, it became clear that a limited knowledge base existed upon which implementation recommendations were being made or carried out. Anecdotal information served as the only means of guidance through the complex set of course components and implementation procedures.

Because there were nearly as many methods of implementation as there were adopters, questions arose both on the part of previous and potential adopters: What works? What doesn't? How can new adopters profit from the experience of previous adopters?, etc. A research study, sponsored by Mid-Continent Regional Education Laboratory and the University of Missouri Department of Agricultural Economics, was initiated in May, 1988, the purpose of which was to survey the 21 secondary schools in Missouri and North Dakota currently involved in German I by Satellite from Oklahoma State University. The high school

credit course in German I was chosen as the basis for the study because it was the forerunner of all other instruction by Satellite secondary courses in the country *and* because it was most widely adopted among Missouri and North Dakota districts.

Each of the fourteen Missouri and seven North Dakota schools participated in the first phase of the comprehensive Distance Learning Study. Questionnaire forms mailed to each district included those for: 1) the Administrator responsible for initiating the program in the school; 2) the Program Coordinator (e.g., the person in the local classroom responsible for coordinating the course); 3) each student enrolled in German I by Satellite; and 4) the parent of each enrolled student. In addition, students were given a standardized German test to be used as a relative measure of achievement against which input variables could be weighed. The following number of questionnaires were returned: 20 Administrator questionnaires (95%); 17 Coordinator questionnaires (81%); 110 student questionnaires (78%); 87 parent questionnaires (62%); and 114 German tests (81%).

A preliminary Descriptive Statistical Report summarized the data collected through each questionnaire. Its intent was to provide *initial* feedback to participating schools and other interested agencies and organizations.

In the context of further analysis, however, several dichotomies or natural groupings became apparent:

1) On many issues there were significant differences in responses between the two states:
2) Whether the class was received live or by videotape had an apparent influence on many responses.
3) While responses were fairly homogeneous within North Dakota, Missouri schools differed greatly on most survey items.
4) A dichotomy appeared between those schools who independently acquired equipment and subscribed to the course directly with OSU and those schools who leased the equipment and subscribed to the course through an independent broker, the Missouri Schools Boards Association.
5) Differences were detected between schools based on the role assumed by the local coordinator and the extent of software utilization in the course.
6) It appeared that size of district had an influence on the perceived success of the program.

These apparent dichotomies directed the further analyses of the

data included herein. This Inter- and Intra-State Comparison Report will attempt to analyze the factors involved in adopting districts as they differ with respect to course implementation, student achievement, costs, and attitudes about the course. Key issues covered will include:

- An analysis of the differences among schools and between states in measures of student success
- An inter- and intra-state analysis of the differences among German by Satellite (GBS) student characteristics
- Course implementation procedures as they differ among schools, including:
    a) Acquisition date of downlink capability
    b) District restrictions on enrollment in GBS
    c) Person responsible for students enrolling in GBS course
    d) Location of GBS class
    e) Modifications made to class bell schedule to accomodate GBS
    f) Coordinator training
    g) Duties performed by the coordinator
    h) Coordinator level of knowledge
    i) Handling of homework and tests
    j) Student software and other course component usage
    k) Student access to computers
- An analysis of the differential costs involved in course implementation among participating districts
- A comparison of administrator, coordinator, student and parent attitudes about German by Satellite
- A comparison of live vs. taped instruction as measured by student achievement and student and parent attitudes
- Implications for the future of instruction by Satellite

For purposes of this report, responses have been reported in three groups: (1) North Dakota schools, who purchased their equipment with technical assistance provided by Mayville State University; (2) Missouri-purchased systems; and (3) Missouri-leased systems. While the breakdown of Missouri responses into "purchased" and "leased" systems is not intended to infer causation, it is clear that those districts purchasing their own equipment and subscribing directly with OSU for the German by Satellite class did indeed respond differently on most items as compared to those schools who leased their equipment and subscribed to the course through an independent broker, the Missouri School Boards Association.

I. HOW DOES STUDENT SUCCESS IN GERMAN BY SATELLITE VARY AMONG SCHOOLS AND BETWEEN STATES?

Student success, unfortunately, is usually measured in terms of grades received or test scores earned. Hampered by the same inability to adequately measure "student success", this study attempts to encompass several other factors in addition to grades and test scores, e.g., whether or not students would enroll in another instruction by satellite class, student and coordinator perceptions of amount learned, students' perception of whether improvements are needed in the course, and student persistence rate.

Semester Grades Received

When looking at first and second semester grades received by students in the schools involved with German by Satellite during the 1987-88 school year in Missouri and North Dakota, differences are apparent. Over half of Mo-Purchased students received grades of "A" for both semesters, as compared to a smaller percentage for both North Dakota and Mo-Leased students. Furthermore, the percentage of "A's" decreased significantly from first to second semester for both Mo-Leased and North Dakota students. While one-third of Mo-Leased students received an "A" for the first semester, the percentage of "A's" fell to one-fifth at the end of the second semester. When looking at percentage of students receiving grades of "A" or "B" for the first semester, 88% of North Dakota students can be compared to 83% and 70% for Mo-Purchased and Mo-Leased students respectively. Second semester grades show a greater divergence among states, however, with 80% of Mo-Purchased students, 69% of North Dakota students, and 52% of Mo-Leased students receiving "A" or "B" grades. Although there is a general decline in grades from first to second semester among North Dakota and Mo-Leased students, the decline is not as evident among Mo-Purchased students. It should be noted, in addition, that no North Dakota students received grades of "D" or "F" for either semester.

Table 1: FIRST SEMESTER GERMAN I GRADES X STATE

	A	B	AorB	C	D	E	Total
MO-PURCHASED	55%	28%	83%	10%	7%	0%	100%
MO-LEASED	33%	37%	70%	27%	0%	3%	100%
NORTH DAKOTA	46%	42%	88%	12%	0%	0%	100%
ALL SCHOOLS	45%	35%	80%	17%	2%	1%	100%

Table 2: SECOND SEMESTER GERMAN I GRADES X STATE

	A	B	AorB	C	D	E	Total
MO-PURCHASED	57%	23%	80%	13%	3%	3%	100%
MO-LEASED	20%	32%	52%	32%	12%	4%	100%
NORTH DAKOTA	31%	38%	69%	31%	0%	0%	100%
ALL SCHOOLS	37%	31%	68%	25%	5%	2%	100%

Standardized German Achievement Test Scores

Because of the need to have an impartial, uniform basis on which to judge student achievement in the German by Satellite class, a standardized normed test was sought to be administered to GBS students in Missouri and North Dakota. As was determined, the only such test available was the National Association of Teachers of German Level I Test (Form B). The normative data against which students were measured, however, was based on a pretest of students at the University of Colorado-Boulder at the end of their first semester of college-level German. Although this test is intended to measure achievement of secondary school students at the end of their first year of German language instruction, the degree of correlation between achievement expectations of one year of secondary instruction vs. one semester of college instruction may be questioned. Because there are no normative data available specifically for secondary students having taken the test, its value is seen not as a stand-alone measure of amount of knowledge gained, but rather as a *relative* measure of achievement against which schools can be compared and course input variables assessed.

North Dakota exceeds Missouri across the board in scores attained with 55% of the their students ranking above the 50th percentile and slightly under 40% ranking above the 38th percentile. Within Missouri,

however, Mo-Purchased students out-perform their Mo-Leased counterparts significantly, with 45% as compared to 31% of their students scoring above the 50th percentile.

Table 3: PERCENTILE SCORING OF STUDENTS ON STANDARDIZED GERMAN TEST x STATE

	% ABOVE 50TH %TILE	% ABOVE 60TH %TILE	% ABOVE 70TH %TILE
MO-PURCHASED	45%	38%	24%
MO-LEASED	31%	22%	17%
NORTH DAKOTA	55%	48%	38%
ALL SCHOOLS	40%	32%	24%

Would Students Enroll in Another Instruction by Satellite Course

There are, in addition to grades and test scores, other measures which can be used as indications of student success. One such measure is the students' indication of whether they would enroll in another instruction by satellite course. Overwhelmingly, Mo-Purchased students exceed both Mo-Leased and North Dakota students in their willingess to enroll again. Sixty-five percent of Mo-Purchased students indicated they would enroll in another instruction by satellite course, while less than half of Mo-Leased and North Dakota students would do so. Despite the variance among states, the data suggests that this technology may be much more appropriate to some students than to others. This question will be dealt with in greater detail in a subsequent report.

Table 4: STUDENT INDICATION OF WHETHER THEY WOULD ENROLL IN ANOTHER INSTRUCTION BY SATELLITE COURSE X STATE

	YES	NO	UNSURE/NO RESP	TOTAL
MO-PURCHASED	65%	35%	0%	100%
MO-LEASED	49%	43%	9%	100%
NORTH DAKOTA	49%	41%	10%	100%
ALL SCHOOLS	54%	40%	6%	100%

Student Perception of Amount Learned

Students were asked to indicate how much they felt they had learned in the course during the year. Similiar to previous measures of success, Mo-Purchased students lead all students with 27% indicating they feel they have learned "a great deal". Twelve percent (12%) of North Dakota students rate knowledge gained in the highest category, while only 6% of Mo-Leased students feel they had learned "a great deal". Over half of Mo-Leased and North Dakota students feel they have not learned as much as they think they should have and 11% and 5% of the students, respectively, feel they have not learned much at all. It is important to note the divergence among students within each state category as well. While nearly 60% of Mo-Purchased students felt they had learned an acceptable amount or more, there were still 15% who felt their level of knowledge clearly insufficient.

Table 5: STUDENT PERCEPTION OF AMOUNT LEARNED X STATE

	MO-PURCHASED	MO-LEASED	NORTH DAKOTA	ALL SCHOOLS
A great deal	27%	6%	12%	15%
An acceptable amount	30%	31%	32%	31%
Not as much as I think I should have by now	27%	51%	51%	44%
Not much at all	15%	11%	5%	10%
TOTAL	100%	100%	100%	100%

Coordinator Perception of Amount Learned by Students

Just as students were asked to assess the amount they had learned in the course, coordinators were also asked to assess student knowledge gained. Generally, coordinators rated student knowledge gained higher than the students did for themselves. In all state categories coordinator perceptions exceeded that of students when looking at the combined top two categories of level of knowledge. Conversely, students were much more critical of the amount learned than were their coordinators. In absolute terms coordinators in Mo-Purchased and North Dakota schools rated student knowledge gained (80% and 73%) approximately twice as highly as the Mo-Leased coordinators (39%).

More than half (51%) of North Dakota and Mo-Leased students felt they had not learned as much as they should have compared to 27% of the Mo-Purchased students, but coordinator and student perceptions differed markedly in North Dakota, where 66% of the coordinators--as compared to only 12% of the students-- rated the knowledge gained at the highest level.

Table 6: PERCENT OF STUDENTS BY COORDINATOR PERCEPTION OF AMOUNT LEARNED IN GERMAN BY SATELLITE CLASS

	COORDINATOR PERCEPTION OF AMOUNT LEARNED BY STUDENTS			
	A GREAT DEAL	AN ACCEPTABLE AMOUNT	NOT AS MUCH AS I THINK THEY SHOULD HAVE BY NOW	NOT MUCH AT ALL
MO-PURCHASED	21%	59%	21%	0%
MO-LEASED	23%	16%	61%	0%
NORTH DAKOTA	66%	7%	27%	0%

Student Perception of Whether Improvements Are Needed in the Course

Similar relationships are reflected in terms of perception of student success. Only 38% of Mo-Purchased students felt there were improvements needed in the course as compared to 54% for North Dakota and 80% for Mo-Leased students. Clearly, Mo-Purchased students feel much better about the course than do Mo-Leased students. (Several explanations for these views will be dealt with in a subsequent report.) While out-performing other students on first semester grades and achievement test scores, more than half of the North Dakota students felt improvements were needed in the course. This may reflect their ability to better overcome course problems than Missouri students; they looked at the need to improve the course quite independently from their success in it.

Table 7: STUDENT PERCEPTION OF WHETHER IMPROVEMENTS ARE NEEDED IN THE COURSE X STATE

	YES	NO	NO RESPONSE	TOTAL
MO-PURCHASED	38%	53%	9%	100%
MO-LEASED	80%	20%	0%	100%
NORTH DAKOTA	54%	37%	10%	100%
ALL SCHOOLS	57%	36%	6%	100%

Average Student Persistence Rate

A legitimate measure of student success is the extent to which students drop out of a course--or are allowed to drop. While all Missouri schools report the allowance for students to drop the course at semester, 15% of the North Dakota students (1 school) did not allow student attrition. Had scores been adjusted to reflect this policy, North Dakota's performance on the achievement test may have been further elevated.

Table 8: PERCENT OF STUDENTS BY WHETHER SCHOOL POLICY ALLOWED STUDENTS TO DROP COURSE AT SEMESTER X STATE

	Students Allowed to Drop	Students NOT Allowed to Drop	Total
MO-PURCHASED	100%	0%	100%
MO-LEASED	100%	0%	100%
NORTH DAKOTA	85%	15%	100%
ALL SCHOOLS	94%	6%	100%

Persistence rate--the rate at which students complete the course--can be seen in Table 9 below. North Dakota leads the way with 84% of their students completing the course, while Mo-Leased and Mo-Purchased schools show 78% and 71% completion rates, respectively.

Table 9: AVERAGE STUDENT PERSISTENCE RATE FROM 1ST TO 2ND SEMESTER X STATE

	AVERAGE STUDENT PERSISTENCE RATE
MO-PURCHASED	71%
MO-LEASED	78%
MO-NORTH DAKOTA	84%
ALL SCHOOLS	75%

SUMMARY

When looking at traditional measures of school success--grades received and test scores earned--Mo-Purchased and North Dakota students consistently out-perform Mo-Leased students. North Dakota students out-perform those in Mo-Purchased schools on all but second semester grades.

On the added "success variables"--willingness to enroll in another instruction by satellite class, student and coordinator perception of amount learned, and student perception of whether improvements are needed in the course, Mo-Purchased students consistently rank first, followed by North Dakota students.

Only on the variable of student persistence rate do Mo-Leased students rank slightly above Mo-Purchased students, but behind North Dakota students. (See Table 10)

Table 10: STUDENT RANKING BY STATE ON SELECTED "SUCCESS VARIABLES"

	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
1ST SEMESTER GERMAN GRADES	2	3	1
2ND SEMESTER GERMAN GRADES	1	3	2
ACHIEVEMENT TEST SCORES	2	3	1
WILLINGNESS TO ENROLL IN ANOTHER SATELLITE CLASS	1	3	2
STUDENT PERCEPTION OF AMOUNT LEARNED	1	3	2
COORDINATOR PERCEPTION OF AMOUNT LEARNED	1	3	2
STUDENT PERCEPTION OF WHETHER IMPROVEMENTS ARE NEEDED IN COURSE	1	3	2
STUDENT PERSISTENCE	3	2	1
MEAN RANKING	1.5	2.9	1.6

II. HOW DO STUDENT CHARACTERISTICS VARY AMONG SCHOOLS AND BETWEEN STATES?

Grade Point Average of Enrolled Students

While the average accumulated GPA for students enrolled in German by Satellite fell within the 3.0-3.49 range (on a 4-point scale), some difference can be noted among schools and between states. The average GPA was slightly higher in North Dakota (3.25), than for Mo-Leased (3.22) or Mo-Purchased (3.12) students. As verified by the lack of ability-based enrollment restrictions, however, GBS students in North Dakota schools were more evenly spread across all GPA levels. Thirty percent (30%) of North Dakota students had GPA's of 2.0 or below, as compared to 20% for Missouri students. When looking at GPA's of 3.0 or above, little significant difference is seen, however, across states. Sixty-three percent (63%) of North Dakota students had GPA's of 3.0 or above, as compared with 62% for Mo-Purchased students and 54% for Mo-Leased students.

Table 11: INSTRUCTION BY SATELLITE STUDENT OVERALL GPA X STATE

	% of Students		
GPA	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
3.5-4.00	43%	27%	30%
3.0-3.49	19%	27%	33%
2.5-2.99	19%	24%	7%
2.0-2.49	10%	16%	15%
1.0-1.99	10%	5%	15%

Students Self-Categorization of their Grades

Trying to ascertain how students enrolled in GBS viewed themselves, all students were asked to categorize themselves as either an "A", "A-B", "C" or "D" student. Table 12 below detailing their responses shows almost no difference in the way students perceive themselves either between states or among schools. Roughly three-fourths of the students across all schools considered themselves as "A" or "A-B" students, while actual GPA's indicated slightly lower performance. "D" students in Mo-Purchased and North Dakota schools tended to overestimate their performace more so than in Mo-Leased schools.

Table 12: HOW STUDENTS CATEGORIZED THEMSELVES GRADEWISE X STATE

	% of Students			
	"A" STUDENT	"A-B" STUDENT	"C" STUDENT	"D" STUDENT
MO-PURCHASED	24%	53%	21%	3%
MO-LEASED	20%	51%	26%	3%
NORTH DAKOTA	24%	56%	17%	2%

Student Rank

Of importance is the percent of Missouri students enrolled in German by Satellite who rank in the lower 50% of the graduation class as compared to North Dakota students who are much more evenly distributed with respect to student rank. Nearly half of Missouri's students ranked in the top 20% of the graduation class as compared to only 26% of North Dakota students.

Table 13: STUDENT RANK IN GRADUATION CLASS X STATE

	% of Students		
	IN TOP 20%	IN TOP 50%	IN LOWER 50%
MO-PURCHASED	52%	72%	28%
MO-LEASED	41%	78%	22%
NORTH DAKOTA	26%	59%	41%

Current Grade Level of Enrolled Students

A higher percentage of Freshmen and Sophomores were enrolled in the German by Satellite class in Mo-Leased schools as compared to either Mo-Purchased or North Dakota schools. Conversely, seniors accounted for 59% of North Dakota's enrollment, as compared to 38% for Mo-Purchased and 26% for Mo-Leased schools.

Table 14: CURRENT GRADE LEVEL OF INSTRUCTION BY SATELLITE STUDENTS X STATE

	----------% of Students by grade----------			
	9TH	10TH	11TH	12TH
MO-PURCHASED	6%	6%	50%	38%
MO-LEASED	29%	29%	17%	26%
NORTH DAKOTA	2%	17%	22%	59%

Student Plans for College

Little difference can be seen regarding college plans for students in Missouri and North Dakota. In excess of 90% of all students enrolled in German by Satellite announced intentions to go on to college after graduation from high school.

Table 15: STUDENT PLANS FOR GOING TO COLLEGE X STATE

	YES	NO
MO-PURCHASED	97%	3%
MO-LEASED	91%	9%
NORTH DAKOTA	95%	5%

Students differed, however, in their perception of whether the German by Satellite course was needed for college. Missouri students were much more likely to indicate the course as needed for college than were North Dakota students. Within Missouri, Mo-Purchased students were somewhat more likely to indicate the course as needed for college, than were Mo-Leased students.

Table 16: STUDENT PERCEPTION OF WHETHER COURSE IS NEEDED FOR COLLEGE X STATE

	YES	NO	NO RESP
MO-PURCHASED	74%	27%	0%
MO-LEASED	60%	29%	11%
NORTH DAKOTA	46%	51%	2%

Student Course History in Foreign Languages

Mo-Leased students were more likely to have been enrolled in a previous foreign language class. Twenty percent (20%) of Mo-Leased students did report previous experience in foreign language (primarily Spanish and French) as compared to 12% of both Mo-Purchased and North Dakota students.

Table 17: PERCENTAGE OF STUDENTS HAVING ENROLLED IN ANOTHER FOREIGN LANGUAGE COURSE X STATE

	YES	NO
MO-PURCHASED	12%	88%
MO-LEASED	20%	80%
NORTH DAKOTA	12%	88%

Amount of Study Time by GBS Students

Of significance is the finding that nearly four times as many Missouri students spend 5 or more hours per week of out-of-class study time on German--only 5% of North Dakota students, as compared to 19% of Missouri students. Within Missouri more than twice as many Mo-Purchased students (26%) spent 5 or more hours of study time while 11% of Mo-Leased students did likewise. The percent of students spending less than 2 hours per week of out-of-class study time varied from 46% in Mo-Leased schools to 34% in North Dakota schools to 24% in Mo- Purchased schools.

Table 18: STUDENT INDICATION OF NUMBER OF STUDENT HOURS SPENT STUDYING GERMAN OUTSIDE OF CLASSTIME X STATE

	% of Students Studying...	
	Less than 2 hrs./week	5 or more hrs/week
MO-PURCHASED	24%	26%
MO-LEASED	46%	11%
NORTH DAKOTA	34%	5%

Student Motivation Level

Coordinators were asked to assess the motivational level of *each* student enrolled in the course. While 42% of Mo-Purchased students were judged as "highly motivated" as compared to 24% in North Dakota and 13% in Mo-Leased schools, the average motivation level of North Dakota students was slightly higher (2.4) than for other districts.

Table 19: MOTIVATIONAL LEVEL OF STUDENTS AS INDICATED BY COORDINATOR X STATE

	(1 = Highly motivated; 5 = Highly Unmotivated) % of Students		
	% Highly Motivated	% Highly Unmotivated	Mean Ranking of Motivation Level
MO-PURCHASED	42%	18%	2.5
MO-LEASED	13%	5%	2.7
NORTH DAKOTA	24%	9%	2.4

III. HOW DO COURSE IMPLEMENTATION PROCEDURES VARY AMONG SCHOOLS AND BETWEEN STATES?

Acquisition of Downlink Capability

The "newness" of the district to the technology involved may have some bearing on the success of the program. Administrators were therefore asked to indicate the date on which their district acquired a satellite downlink capability. Slightly less than one-third of Mo-Purchased and North Dakota students were enrolled in schools in which the technology had been in place nearly two years prior to this research study. All Mo-Leased schools were new to the technology, with downlink capabilities acquired in August/September 1987.

Table 20: PERCENT OF STUDENTS BY WHEN SCHOOL ACQUIRED DOWNLINK CAPABILITY X STATE

	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
Aug/Sept. 1986	27%	0%	32%
June 1987	9%	0%	0%
Aug/Sept. 1987	52%	88%	68%
October 1987	11%	0%	0%
No Response	0%	12%	0%
	100%	100%	100%

District Restrictions on Enrollment

Both Missouri and North Dakota schools place some restrictions on who or how many students could enroll in the German by Satellite class. A summary of the restrictions can be seen in Table 21 below. While all North Dakota schools reported placing grade-level restrictions on student enrollment, they conversely placed no restrictions on students by ability level. This compared with 45% of Mo-Purchased students and 39% of Mo-Leased students who were subject to ability-level restrictions, e.g., "B" or better English students, Teacher Committee selections, "top students", or "highly motivated" students. Forty-one percent (41%) of Mo-Purchased students were enrolled in districts in which enrollment was restricted to

Juniors and Seniors, compared to 20% of the Mo-Leased students and 25% of the North Dakota students. A small proportion of schools in both states reported placing restrictions on class size, either with respect to minimum or maximum enrollment.

Table 21: DISTRICT-IMPOSED COURSE RESTRICTIONS AS PERCENT OF STUDENTS AFFECTED X STATE

	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
Restrictions placed on grade level of students enrolled	57%	59%	100%
Restrictions placed on ability level of students enrolled	45%	39%	0%
Restrictions placed on class size	30%	20%	37%
No restrictions placed on who or how many students may enroll	39%	41%	0%

Who Was Responsible for Students Enrolling in the GBS Course?

Across all schools, 77% of the students indicated that they were solely responsible for their enrolling in the instruction by satellite course, while the remaining 23% reported some combination of school personnel, students, or family responsible for enrolling. Parents were the most important contributor to the decision to enroll in North Dakota and Mo-Leased schools, while the school counselor and other students were the primary instigators (other than the student) in Mo-Purchased schools. The superintendent, principal, and teachers played a more significant role in the decision to take the course among North Dakota students than in Missouri.

Table 22: STUDENT INDICATION OF PERSONS RESPONSIBLE FOR STUDENT ENROLLING IN COURSE X STATE

	STUDENT ALONE	PARENT	SUPT	PRINC	COUNS	TEACHER	OTHER STUDENTS
MO-PURCHASED	71%	9%	3%	3%	15%	6%	15%
MO-LEASED	69%	23%	0%	3%	17%	0%	9%
NORTH DAKOTA	71%	22%	12%	17%	0%	10%	7%
ALL SCHOOLS	70%	20%	6%	9%	11%	6%	11%

NOTE: Students may have selected multiple persons responsible for enrolling in the course, therefore totals do not add to 100%.

Location of Class

As can be seen in Table 23 below, the site of the class varied a great deal both between states and on broadcast vs. non-broadcast days. While Mo-Purchased districts were more likely to hold the class in the computer lab on both broadcast and non-broadcast days, the media center or library was the choice of the majority of Mo-Leased schools on broadcast days. North Dakota students, on the other hand were more likely to either remain in a room dedicated to the purpose or vary their attendance site, e.g., since all students did not take the class simultaneously, the class site in some schools varied.

Table 23: PERCENT OF STUDENTS BY LOCATION OF CLASS ON BROADCAST AND NON-BROADCAST DAYS X STATE

ON BROADCAST DAYS:	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
In Library or Media Center	38%	61%	--
In regular classroom	--	23%	41%
In computer lab	62%	16%	--
Other	--	--	59%
	100%	100%	100%

Table 23 (cont): PERCENT OF STUDENTS BY LOCATION OF CLASS ON BROADCAST AND NON-BROADCAST DAYS X STATE

ON NONBROADCAST DAYS:	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
In Library or Media Center	--	23%	--
In regular classroom	12%		7%
In computer lab	88%	77%	34%
Other	--	--	59%
	100%	100%	100%

Modifications Made to Class Bell Schedule

Obviously the time frame in which broadcasts originate from OSU rarely coincides with the class schedule of participating districts. In cases where the difference may only be a few minutes, (i.e., less than 10), some schools may allow early release from or late admission to other classes. Alternatively students may miss part of the broadcast because of class conflicts. Preferring not to accomodate the Instruction by Satellite schedule, some schools have chosen to utilize a taped rather than live broadcast format. Other schools have shown a significant commitment to the Instruction by Satellite Program as exhibited by altering their existing class schedule. Forty-five percent (45%) of Mo-Purchased students were enrolled in districts in which the bell schedule had been altered to accomodate Instruction by Satellite courses, as compared to 29% of North Dakota students and only 14% of Mo-Leased students.

Table 24: MODIFICATION OF CLASS BELL SCHEDULE AS PERCENTAGE OF STUDENTS AFFECTED X STATE

	% OF STUDENTS WHOSE SCHOOLS MODIFED BELL SCHEDULE TO ACCOMODATE INSTRUCTION BY SATELLITE CLASSES	
	YES	NO
MO-PURCHASED	45%	55%
MO-LEASED	14%	86%
NORTH DAKOTA	29%	71%
ALL SCHOOLS	29%	71%

Coordinator Training

Eleven of the seventeen coordinators (65%) for whom data was available did indicate that they had received coordinator training which involved 60% of all GBS students in the study. In terms of students affected, however, 85% of North Dakota students had "trained" coordinators, as compared to 68% of Mo-Purchased and 30% of Mo-Leased students.

Table 25: PERCENT OF STUDENTS WHOSE COORDINATORS HAD RECEIVED TRAINING X STATE

	RECEIVED TRAINING	DID NOT RECEIVE TRAINING
MO-PURCHASED	68%	32%
MO-LEASED	30%	70%
NORTH DAKOTA	85%	15%
ALL SCHOOLS	60%	40%

Length of training time varied between 1 and 4 hours among those Mo-Purchased coordinators receiving training. Mo-Leased coordinators receiving training report having attended six hours of training, while North Dakota coordinator training time varied between 1 and 8 hours.

Whether or not written guidelines were received by the satellite coordinators, as reflected by the percent of students affected, can be seen in Table 26 below:

Table 26: PERCENT OF STUDENTS WHOSE COORDINATORS RECEIVED WRITTEN GUIDELINES X STATE

	Coordinator Received Written Guidelines	Coordinator Did NOT Receive Written Guidelines
MO-PURCHASED	47%	53%
MO-LEASED	100%	--
NORTH DAKOTA	76%	24%

All Mo-Leased coordinators received written guidelines concerning coordinator duties, however, only 76% and 47% of North Dakota and Mo-Purchased students had coordinators who received written guidelines.

The type of coordinator training received is detailed in Table 27 below. The table reflects the percentage of *students* whose coordinator received training in each area. As can be seen from the table, North Dakota students were more likely to have more extensively trained coordinators than Missouri students. Within Missouri, a higher percentage of students in Mo-Leased schools did have coordinators trained in the role of the coordinator and use of the speaker phone system, while a higher percentage of Mo-Purchased students had coordinators trained in operation of satellite receiving equipment, computer software, and modem operation.

When looking at the average percent of students affected by type of coodinator training, North Dakota students clearly benefited.

Table 27: PERCENT OF STUDENTS BY TYPE OF COORDINATOR TRAINING RECEIVED X STATE

	MO-PURCHASED	MO-LEASED	NORTH DAKOTA	ALL SCHOOLS
Operation of Satellite Receiving Equipment	88%	70%	85%	81%
Computer Software	47%	39%	85%	57%
Role of Coordinator	21%	72%	66%	56%
Computer Operation	47%	36%	85%	56%
Speaker Phone System	27%	36%	54%	40%
Modem Operation	26%	0%	54%	26%
AVERAGE	43%	42%	72%	53%

Duties Performed by the Coordinator

Certainly one factor influencing how the role of class coordinator is carried out is the degree to which simlutaneous duties are assigned to the coordinator during the German by Satellite course. Table 28 below shows that while Mo-Purchased and North Dakota coordinators were for the most part dedicated to the GBS coordinator role during classtime, 21% of GBS students in Mo-Leased schools had coordinators who had simultaneous duties, i.e., were not present in the classroom at all times.

Table 28 : PERCENT OF STUDENTS WHO HAVE COORDINATORS WITH OTHER SIMULTANEOUSLY ASSIGNED DUTIES X STATE

	% OF STUDENTS WITH SIMULATANEOUSLY ASSIGNED COORDINATORS
MO-PURCHASED	0 %
MO-LEASED	21 %
MO-NORTH DAKOTA	1 %

As might be expected, the common duties performed by the coordinator as indicated by the students were: (1) giving tests (99%); (2) grading tests (98%); (3) maintaining discipline (95%); (4) taping satellite broadcasts (94%); and (5) motivating students (94%). On the opposite end of the spectrum, those duties indicated by less than one-third of the students as performed by the coordinator were: (1) scheduling as "host school" (22%); and (2) assisting with modem usage (27%).

When looking at differential performance of coordinator duties by state, one sees that Mo-Purchased coordinators--as perceived by students--are more likely to perform all listed duties, with the exception of taping satellite broadcasts and giving and grading tests. (This may be explained by someone else within the school performing those duties.) In some instances--e.g., in assisting with modem usage, encouraging students to call the professor, providing additional quizzes or worksheets, identifying and solving individual student problems, learning German along with the students, watching all broadcasts, answering or finding answers to simple questions and scheduling as "host school"--Mo-Purchased students indicate coordinator performance of duties far more often than do Mo-Leased or North Dakota students.

Table 29: STUDENT PERCEPTION OF DUTIES CURRENTLY PERFORMED BY COORDINATOR X STATE

	% OF STUDENTS FOR WHOM COORDINATOR IS CURRENTLY PERFORMING DUTIES ACCORDING TO STUDENTS			
	MO-PURCHASED	MO-LEASED	NORTH DAKOTA	ALL SCHOOLS
Giving tests	97%	100%	100%	99%
Grading tests	94%	100%	100%	98%
Maintaining discipline	97%	97%	90%	95%
Taping satellite broadcasts	94%	91%	95%	94%
Motivating students	94%	94%	93%	94%
Operate satellite equipment	91%	86%	78%	85%
Coordinate use of software	88%	66%	76%	76%
Assisting with software	82%	60%	75%	73%
Watching all broadcasts	91%	60%	71%	73%
Encourage...call professor	76%	66%	66%	69%
Learning German w/students	94%	44%	68%	68%
Troubleshooting equipment	76%	60%	66%	67%
Answering/finding answers to simple questions	82%	43%	73%	66%
Add'l quizzes/worksheets	88%	66%	29%	59%
Solving individual problems	76%	40%	56%	57%
Assisting with modem	62%	6%	17%	27%
Scheduling as "Host School"	56%	14%	0%	22%

Table 30: COORDINATOR PERCEPTION OF DUTIES CURRENTLY PERFORMED BY COORDINATOR AS PERCENT OF STUDENTS AFFECTED X STATE

	% OF STUDENTS FOR WHOM COORDINATOR IS CURRENTLY PERFORMING DUTIES ACCORDING TO COORDINATORS			
	MO-PURCHASED	MO-LEASED	NORTH DAKOTA	ALL SCHOOLS
Motivating students	100%	86%	100%	95%
Maintaining discipline	100%	100%	100%	100%
Assisting with software	100%	50%	100%	82%
Assisting with modem	68%	16%	7%	28%
Encourage...call professor	79%	86%	58%	75%
Coordinating use of software	74%	86%	90%	84%
Troubleshooting equipment	68%	48%	27%	46%
Operating satellite equipment	88%	84%	68%	80%
Taping satellite broadcasts	100%	84%	68%	83%
Giving tests	100%	100%	100%	100%
Grading tests	100%	100%	100%	100%
Add'l quizzes/ worksheets	100%	72%	49%	72%
Solving individual problems	88%	50%	76%	70%
Learning German with students	100%	73%	71%	80%
Watching all broadcasts	74%	73%	66%	71%
Answering/finding answers to simple questions	100%	64%	100%	87%
Scheduling as "host school"	53%	50%	2%	34%

For comparison purposes, coordinators were also asked to check those duties which they currently performed (Table 30). The resultant cross-check of student and coordinator perception of duties performed by the coordinator reveal that:

(1) Coordinators consistently overestimate--or students consistently underestimate--many of the duties performed by the coordinators. When looking at all schools together, coordinators were more likely than students to indicate performance on thirteen of the seventeen duties listed on the questionnaire.

(2) On four duties, however, students indicated a higher percentage performance than coordinators--operating satellite equipment, troubleshooting equipment problems, taping satellite broadcasts, and watching all broadcasts with the students.

(3) A substantial difference existed among schools in the three geographic categories with respect to coordinator and student perception of coordinator duties performed. Both Mo-Leased and North Dakota schools exhibited more than 20 points differential between student and coordinator assessment on several duties. Less divergence existed between student and coordinator perceptions in Mo-Purchased schools, where a total point differential of 134 was found between student and coordinator assessments, as compared to 207 for Mo-Leased and 217 for North Dakota. A possible interpretation of this finding is that Mo-Purchased coordinators appear to have been more closely involved with the students than were coordinators in the other two locations. (See Table 31)

Table 31: RELATIVE POINT DIFFERENTIAL BETWEEN STUDENT AND COORDINATOR REPORTS OF COORDINATOR DUTIES PERFORMED X STATE

	MO-PURCHASED	MO-LEASED	NORTH DAKOTA	ALL SCHOOLS
Giving tests	+3	--	--	+1
Grading tests	+6	--	--	+2
Maintaining discipline	+3	+3	+10	+5
Taping satellite broadcasts	+6	-7	-27	-11
Motivating students	+6	-8	+7	+1
Operate satellite equipment	-3	-2	-10	-5
Coordinate use of software	-14	+20	+14	+8
Assisting with software	+8	-10	+25	+9

Table 31 (cont): RELATIVE POINT DIFFERENTIAL BETWEEN STUDENT AND COORDINATOR REPORTS OF COORDINATOR DUTIES PERFORMED X STATE

	MO-PURCHASED	MO-LEASED	NORTH DAKOTA	ALL SCHOOLS
Watching all broadcasts	-17	+13	-5	-2
Encourage...call professor	+3	+20	-8	+6
Learning German w/students	+6	+29	+3	+12
Troubleshooting	-8	-12	-39	-21
Answering/finding answers to simple questions	+18	+21	+17	+21
Add'l quizzes/worksheets	+12	+6	+20	+13
Solving individual problems	+12	+10	+20	+13
Assisting with modem	+6	+10	-10	+1
Scheduling as "Host School"	-3	+36	+2	+12
Total % point differential	134	207	217	143
+ points	+89	+168	+118	+104
- points	-45	-39	-99	-39

NOTE: A + number indicates that the coordinator percentage was higher than the student %, i.e., the coordinator was more likely than the student to indicate that he/she performed the duty. A - number indicates that the coordinator percentage was lower than the student %, i.e., the students were more likely than the coordinator to indicate performance of the coordinator duty.

Knowledge Level of GBS Coordinators

Coordinators were asked to assess their knowledge level of each of the following course components prior to assuming the role as course coordinator. Of primary interest is the degree of divergence on every item listed in the questionnaire. It appeared that the coordinators hired in each group of schools, i.e., North Dakota, Mo-Purchased, and Mo-Leased, had significant differences in backgrounds which were brought to the role of course coordinator. This may in part explain the differential implementation of course components among schools.

Previous knowledge of German among North Dakota coordinators may also have contributed to enhancing student success in that state.

Table 32: PERCENT OF STUDENTS BY COORDINATOR SELF-RATING OF PRIOR KNOWLEDGE LEVEL OF SELECTED COURSE INPUTS X STATE

USE OF COMPUTERS:

	% OF STUDENTS BY COORDINATOR KNOWLEDGE LEVEL				
	NONE	VERY LITTLE	SOME	MODERATE AMOUNT	GREAT AMOUNT
MO-PURCHASED	--	59%	--	--	41%
MO-LEASED	27%	23%	--	50%	--
NORTH DAKOTA	--	17%	46%	17%	20%

MODEMS:

	% OF STUDENTS BY COORDINATOR KNOWLEDGE LEVEL				
	NONE	VERY LITTLE	SOME	MODERATE AMOUNT	GREAT AMOUNT
MO-PURCHASED	59%	21%	--	--	21%
MO-LEASED	84%	16%	--	--	--
NORTH DAKOTA	68%	17%	15%	--	--

VIDEOCASSETTE RECORDERS:

	% OF STUDENTS BY COORDINATOR KNOWLEDGE LEVEL				
	NONE	VERY LITTLE	SOME	MODERATE AMOUNT	GREAT AMOUNT
MO-PURCHASED	--	12%	68%	21%	--
MO-LEASED	--	23%	16%	27%	34%
NORTH DAKOTA	--	--	5%	85%	10%

SATELLITE RECEIVING EQUIPMENT:

	% OF STUDENTS BY COORDINATOR KNOWLEDGE LEVEL				
	NONE	VERY LITTLE	SOME	MODERATE AMOUNT	GREAT AMOUNT
MO-PURCHASED	74%	27%	--	--	--
MO-LEASED	86%	14%	--	--	--
NORTH DAKOTA	51%	32%	17%	--	--

COMPUTER PROGRAMMING:*

	% OF STUDENTS BY COORDINATOR KNOWLEDGE LEVEL				
	NONE	VERY LITTLE	SOME	MODERATE AMOUNT	GREAT AMOUNT
MO-PURCHASED	59%	--	21%	21%	--
MO-LEASED	61%	23%	16%	--	--
NORTH DAKOTA	51%	2%	10%	17%	20%

* This was asked not because it was necessary in the role of course coordinator, but in order to better understand the background of course coordinators.

COMPUTER SOFTWARE USE:

	% OF STUDENTS BY COORDINATOR KNOWLEDGE LEVEL					
	NONE	VERY LITTLE	SOME	MODERATE AMOUNT	GREAT AMOUNT	NO RESP
MO-PURCHASED	--	59%	--	21%	21%	--
MO-LEASED	27%	--	34%	--	16%	23%
NORTH DAKOTA	--	17%	37%	27%	20%	--

TAPE RECORDERS:

	% OF STUDENTS BY COORDINATOR KNOWLEDGE LEVEL				
	NONE	VERY LITTLE	SOME	MODERATE AMOUNT	GREAT AMOUNT
MO-PURCHASED	--	--	--	100%	--
MO-LEASED	--	--	--	48%	52%
NORTH DAKOT	--	--	--	22%	78%

SPEAKER TELEPHONES:

	% OF STUDENTS BY COORDINATOR KNOWLEDGE LEVEL				
	NONE	VERY LITTLE	SOME	MODERATE AMOUNT	GREAT AMOUNT
MO-PURCHASED	79%	21%	--	--	--
MO-LEASED	57%	27%	--	16%	--
NORTH DAKOTA	37%	63%	--	--	--

KNOWLEDGE OF GERMAN LANGUAGE:

	% OF STUDENTS BY COORDINATOR KNOWLEDGE LEVEL				
	NONE	VERY LITTLE	SOME	MODERATE AMOUNT	GREAT AMOUNT
MO-PURCHASED	59%	21%	21%	--	--
MO-LEASED	84%	--	--	--	16%
NORTH DAKOTA	20%	10%	--	71%	--

CLASSROOM MANAGEMENT SKILLS:

	% OF STUDENTS BY COORDINATOR KNOWLEDGE LEVEL					
	NONE	VERY LITTLE	SOME	MODERATE AMOUNT	GREAT AMOUNT	NO RESP
MO-PURCHASED	--	--	--	41%	47%	12%
MO-LEASED	--	--	--	--	86%	14%
NORTH DAKOTA	--	--	--	22%	78%	--

Handling of Homework and Tests

All coordinators were asked to describe the process by which homework and tests were handled. The following table relates their responses as the percent of students affected. Of interest is the difference between North Dakota and Missouri in percent of students for whom all homework is sent to OSU for grading. While roughly three-fourths of the Missouri students have their homework graded by OSU, only 37% of North Dakota students do likewise, therefore indicating a potential benefit of more immediate feedback on course progress. Likewise a smaller percentage of North Dakota students' tests are reportedly sent to OSU for grading--probably due to the number of German-speaking coordinators in North Dakota.

Table 33: PERCENT OF STUDENTS BY HOW HOMEWORK AND TESTS ARE HANDLED X STATE

	MO-PURCHASED		MO-LEASED		NORTH DAKOTA	
	Yes	No	Yes	No	Yes	No
All homework is graded locally	0%	100%	30%	70%	41%	59%
All homework is graded locally, but sent to OSU for verification	0%	100%	16%	84%	15%	85%
All homework is sent to OSU for grading	79%	21%	73%	27%	37%	63%
Portions of tests are graded locally	100%	0%	100%	0%	100%	0%
Tests are sent to OSU for grading	21%	79%	39%	61%	17%	83%

Corroborating the above information is the coordinator indication of whether students experience problems because of mail delays. Table 34 below shows nearly half of Missouri students experiencing problems because of mail delays, while only 17% of North Dakota students experience problems--presumably because there is less reliance on mailed homework and tests from North Dakota.

Table 34: PERCENT OF STUDENTS AFFECTED BY WHETHER COORDINATORS INDICATE THAT THEY EXPERIENCE PROBLEMS BECAUSE OF MAIL DELAYS X STATE

	YES	NO
MO-PURCHASED	41%	49%
MO-LEASED	48%	52%
NORTH DAKOTA	17%	83%
TOTAL SCHOOLS	35%	65%

Student Software and Other Course Component Usage

German I by Satellite involves the use of four distinct pieces of software: (1) Wortschatz--vocabulary; (2) Dasher--grammar; (3) Diktat--dictation; and (4) VBLS--the Voice-based Learning System in which students try to perfect their spoken German through the digitized comparison of their pronunciation with that of their instructor's computer-stored pronunciation. All software, with the exception of Dasher, are provided by OSU as part of the course fee. Dasher must be purchased from an independent supplier. In addition, the hardware and internal computer card required for operation of the Voice-Based Learning System must be purchased from another supplier.

When viewing coordinator perceptions of student software usage, clear differences appear among states. Students in all Mo-Purchased schools are reported by coordinators to use each of the four software programs, while software usage among Mo-Leased students *is not* universal. North Dakota students in some schools are reported by coordinators to *not* use either Diktat or VBLS. Frequency of use for Dasher and Wortschatz is greater than for Diktat and VBLS in both states, however. In addition, students in Mo-Leased schools are less likely to use VBLS than are other students. Use of Diktat-- according to the coordinators--is much more prevalent among Mo-Purchased schools than either in Mo-Leased or North Dakota schools, where a significant percentage *never* use Diktat. These data would seem to indicate that while computer access is not a problem in Mo-Leased schools, there is a lack of emphasis on software use. An attempt will be made later in this document to determine the effect of limited software use on student success variables.

Table 35: PERCENT OF STUDENTS BY COORDINATOR ASSESSMENT OF FREQUENCY OF VARIOUS COURSE INPUT USAGES X STATE

	STUDENT FREQUENCY OF USE					
	MO-PURCHASED		MO-LEASED		NORTH DAKOTA	
	Never	At least Once/wk	Never	At least Once/wk	Never	At least Once/wk
Dasher	0%	100%	14%	86%	0%	73%
Wortschatz	0%	88%	14%	86%	0%	73%
Diktat	0%	26%	23%	27%	32%	20%
Voice-Based Learning System	0%	21%	16%	0%	5%	11%
Electronic Mailbox	29%	21%	100%	0%	98%	0%
Call in questions during broadcasts	41%	0%	27%	16%	63%	0%
Call in questions at other times	0%	0%	27%	0%	0%	0%
Call in questions from home	100%	0%	66%	0%	32%	0%
Use audiotapes with Wortschatz	33%	0%	30%	0%	37%	0%
Use audiotapes that accompany work/lab book	0%	0%	30%	0%	0%	27%

NOTE: This table reflects coordinator responses in only two categories: "Never" and "At least once per week". Other frequency of use categories, (e.g., "Rarely", "About once/month", and "2-3 times/month"), are not reported in this table; hence, totals do not equal 100%.

Regarding other course input factors, e.g., contact with the instructor and use of audiotapes in the course, the following observations can be made:

(1) Use of the electronic mail system to converse with OSU's instructor via modem is *not used* or *not available* in either North Dakota or Mo-Leased schools, thus reducing one of the options through which students can communicate with their instructor.

(2) North Dakota students appear to be more reluctant to call in questions during broadcasts, while--within Missouri--Mo-Purchased students show greater reluctance than do Mo-Leased students.
(3) Student call-ins outside of classtime do occur in all Mo-Purchased and North Dakota schools, however, coordinators report that a significant percentage of the students in Mo-Leased schools never call in--either during or outside of classtime.
(4) North Dakota students are much more likely than Missouri students to call in questions *from home*. Coordinators report that one-third of Mo-Leased students do call from home while *no* Mo-Purchased students reportedly do so. [A toll-free number is provided to all students, but access to the instructor varies. A recording device tapes student questions for delayed response or during the following broadcast when the instructor is not available.]
(5) Very little difference exists between states in the amount of audiotape usage with Wortschatz software. Intended to be used to expose students to the sound of the German word in the context of transcribing it from German to English, the audiotapes are used by roughly two-thirds of the students but at frequency rates of less than once per week.
(6) Use of the audiotapes which accompany the text and work/lab book are used by all Mo-Purchased and North Dakota students but a significant percentage of Mo-Leased students reportedly *do not use* them. Frequency of use of the audiotapes is clearly higher in North Dakota where a significant number of the students are reported to use them at least once per week.

In addition to coordinator responses regarding student software use, students were asked to report their own software usage patterns. Table 36 below reports the extent of software use as reported by the students themselves:

Table 36: STUDENT REPORTING OF FREQUENCY OF USE OF COURSE COMPONENTS X STATE

	% of Students Reporting Usage of at least Once Per Week vs. % of Students Reporting Non-Use					
	MO-PURCHASED		MO-LEASED		NORTH DAKOTA	
	Never	At least Once/wk	Never	At least Once/wk	Never	At least Once/wk
Dasher software	6%	74%	3%	63%	2%	80%
Wortschatz software	6%	62%	3%	71%	2%	61%
Diktat software	21%	21%	63%	9%	15%	15%
Voice-based Learning System	15%	18%	17%	9%	15%	29%
Electronic Mail	53%	18%	100%	0%	98%	0%
Call in during broadcast	91%	9%	74%	26%	100%	0%
Call in at other times	47%	24%	31%	23%	71%	15%
Call in from home	100%	0%	94%	6%	95%	5%
Use of audiotapes with Wortschatz	32%	32%	71%	3%	76%	2%
Use of audiotapes with text/workbook	26%	32%	36%	11%	44%	10%

When viewing the difference between student and coordinator perceptions of student use of software and other course components, it is important to remember that in both cases the percentage reported reflects the number of students not the number or percentage of coordinators. In addition, it should be remembered that coordinators responded for their students as a whole and did not differentiate between individual students in the extent of software usage. Therefore, coordinator responses should be interpreted as more indicative of general tendencies for each district while student responses are individual in nature.

When viewing individual student software usage, however, several key findings are evident:

(1) The percentage of North Dakota students using Dasher and VBLS exceeds that of Missouri students, however, within Missouri, Mo-Purchased students' usage of both pieces of software is more extensive than that of Mo-Leased students.
(2) Mo-Leased students are more likely to use Wortschatz software than are other students.
(3) Diktat usage is highest among Mo-Purchased students and lowest among Mo-Leased students.

Likewise, student reporting of usage of other course components yields the following conclusions:

(1) Mo-Purchased students more extensively use Electronic Mail and the audiotapes associated with both Wortschatz software and the text and work/lab book.
(2) Missouri schools are more likely to call in questions to the instructor at other than class times.
(3) Mo-Leased schools are more likely to call in during the broadcasts than are other students.
(4) Little difference exists among students calling in questions from home--students report virtually no usage of the opportunity.

In summary, student reporting of software and other course component usage reveals the following strengths and weaknesses:

(1) North Dakota students more frequently use Dasher and VBLS software than do other students.
(2) Mo-Leased students exceed other students in frequency of Wortschatz use and calling in during broadcasts.
(3) Mo-Purchased students more frequently use Diktat and VLBS software, as do they more frequently call in at other than class times and use the audiotapes associated with Wortschatz and the text/workbook.

Student Access to Computers

Several issues may be important with respect to student access to and use of computers in German I by Satellite. While the bulk of the instruction cannot be left to the two-day per week video broadcasts, it is likely that the amount of student use of the course software is vitally important to student learning. Dealing first with issues of access, it can be seen that the ratio of students to computers is more favorable in

Missouri schools than in North Dakota schools and within Missouri is more favorable within Mo-Leased schools. (OSU's recommendation is two students per computer.)

Table 37: PERCENT OF STUDENTS BY STUDENT-COMPUTER RATIO DURING GERMAN BY SATELLITE CLASS X STATE

	1 STUDENT PER COMPUTER	1-2 STUDENTS PER COMPUTER	MORE THAN 2 PER COMPUTER
MO-PURCHASED	0%	68%	32%
MO-LEASED	39%	34%	27%
NORTH DAKOTA	20%	39%	41%
ALL SCHOOLS	21%	45%	34%

With respect to other issues of access, however, there are few differences between states other than the greater use of computers during release time from other classes for Mo-Purchased and North Dakota schools.

Table 38: PERCENT OF STUDENTS BY AVAILABILITY OF COMPUTERS X STATE

	% OF STUDENTS FOR WHOM COMPUTERS ARE AVAILABLE		
	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
Monday-Friday during classtime	53%	66%	63%
Only on non-broadcast days	47%	34%	37%
Before school	68%	86%	85%
After school	88%	63%	85%
During study halls/lunch periods	79%	72%	85%
During release time from other classes	12%	64%	63%

IV. COST COMPARISON OF SCHOOLS IMPLEMENTING GERMAN BY SATELLITE IN MISSOURI AND NORTH DAKOTA

Whereas North Dakota approved Technology Grant funds specificly for the purpose of assisting schools in implementing programs involving technology, Missouri's Incentive Grant funds were not similarly targeted. Missouri schools wishing to utilize grant monies for course implementation were put in a highly competitive situation with other districts in the state. Chapter II (ECIA) monies were in some cases utilized as well to cover a portion of the project-related costs.

Table 39: PERCENT OF STUDENTS BY UTILIZATION OF SPECIAL STATE GRANT FUNDS EXPENDED FOR SATELLITE EQUIPMENT

	TECHNOLOGY GRANT	INCENTIVE GRANT	CHAPTER II FUNDS
MO-PURCHASED	0%	61%	0%
MO-LEASED	0%	0%	12%
NORTH DAKOTA	100%	0%	0%

Administrators were asked to consider several aspects of the German by Satellite course and to indicate whether they considered them to be an advantage or disadvantage. Among the various aspects were equipment cost, course subscription fees, and overall cost of course. Table 39a below details administrator responses on these cost-related issues. The overall cost of the course was more often considered to be a disadvantage among North Dakota administrators than among those in Missouri. Assessment of equipment costs showed no difference between Mo-Purchased and North Dakota administrators, but Mo-Leased administrators were nearly twice as likely to indicate equipment costs as an advantage. Mo-Leased administrators were also more likely to consider the course subscription fees as advantageous.

Table 39a: ADMINISTRATOR ASSESSMENT OF COST-RELATED COURSE CHARACTERISTICS AS ADVANTAGEOUS OR DISADVANTAGEOUS BY PERCENT OF STUDENTS AFFECTED X STATE

	MO-PURCHASED			MO-LEASED			NORTH DAKOTA		
	Advan-tage	Disad-vantage	NR	Advan-tage	Disad-vantage	NR	Advan-tage	Disad-vantage	NR
Equipment cost	32%	68%	--	63%	37%	--	32%	66%	2%
Course subscription fees	27%	57%	16%	43%	37%	20%	32%	68%	--
Overall cost of course	55%	36%	9%	43%	37%	20%	32%	51%	17%

In comparing costs incurred in implementing the German by Satellite program across districts, it is necessary to understand the course components, methods of implementation, and degree of implementation required. In addition to the $1750 subscription fee charged to participating out-of-state districts to access the two-times a week, 30-week satellite broadcasts, a significant investment was required of districts in order to implement the full course. Below is a list of the *intended* equipment, software and computer peripherals as suggested by Oklahoma State University:

Necessary Equipment	Purpose
C-Band Satellite Antenna (dish)	To downlink broadcast signals from Oklahoma State University
Satellite receiver	To control dish position and direction; to select appropriate satellite transponder (channel) for viewing
Television	To view the twice-weekly broadcasts of the course
Video-cassette recorder (VCR)	To tape broadcasts for use by students who are absent or for review purposes; additionally used by those students who routinely view taped--rather than live--broadcasts

Modem	To converse electronicly with the OSU instructor
One computer for each 2 students	To utilize the four software programs which are part of the course
Printer	To allow for the computer downloading of a hard copy of electronic mail via modem
Telephone access in the classroom	To allow for the class to serve as "host school" during which time a class stays on-line during that day's video broadcast; to give students access to the toll-free number both during broadcasts and at other times of the school day; to allow for modem usage to ask questions of the instructor via electronic mail
Two-way speaker phone	To enable the entire class to participate in discussions with the instructor without the restrictions of a handset

Software/Audiotapes	Purpose
Wortschatz (Included as part of OSU subscription fee)	To allow for student vocabulary drill and practice in translating German to English and English to German. Audiotapes allow students to hear the words being translated. Master tapes are provided by OSU.
Diktat (Included as part of OSU subscription fee)	To enable students to practice writing (on computer) the phrases, sentences and dialogue they hear dictated on the audiotapes. Master tapes are provided by OSU.

Dasher (Directly purchased by districts from Conduit Software Company; available as a single non-copyable disk (plus back-up) or as a 6-disk lab-pack)	To provide students practice in German grammar and punctuation; deals extensively with word order, sentence structure, verb-subject agreement, and conjugation
Voice-Based Learning System Software (provided by OSU as part of the subscription fee)	To provide students with practice in speaking German
Telecommunications software (e.g., Apple Access II)	To allow for use of the modem and computer for electronic mail purposes

Computer Peripherals	Purpose
VETS-2 Voice-Based Learning System (One unit recommended for each ten students)	To allow students to compare their pronunciation of German words with that of a native German speaker; the VBLS consists of a computer card and attached peripheral which digitizes the student's pronunciation and scores it on a scale from 0 - 100. All students are expected to rotate through the program during each chapter covered.

NOTE:

The following periferals are linked to each computer utilized in the course, therefore the number of periferals required depends on the number of computers utilized:

Audio cassette players	To enable students to hear audio-tapes used in the course
Cassette control devices	To link audio cassette players with the computer, e.g., the computer will control the on-off mechanism of the cassette player thereby synchronizing the audio-tape with the computer screen

Headphones and adaptors	To provide for the integrated, independent use of the cassette control device, audiocassette player and software by each student

Texts and Other Necessary Items	Purpose
Deutsch Heute textbooks (one per student--available directly from Houghton-Mifflin)	The text used is a college text with approximately the first six chapters used as the basis for German I by Satellite. The remaining chapters serve as the text for German II by Satellite.
Deutsch Heute work/lab books (one per student--available directly from Houghton-Mifflin)	Exercises from both the workbook and lab book sections are assigned as coursework in German by Satellite
Deutsch Heute cassette tapes (one set per student--available directly from Houghton-Mifflin)	Audiotapes are linked with text and work/lab book
Subscription fee to OSU Electronic Mail Service	Allowed for modem access to electronic mailbox of GBS instructor at Oklahoma State University
Blank audio cassette tapes (approximately 30 , 10-minute tapes per computer)	Used for duplicating the master audio cassette tapes from OSU for student use
Blank video cassette tapes (approximately 10 tapes)	Used for recording the twice-weekly video broadcasts for extended use

As was apparent from the cost information provided by schools participating in the study, a great deal of divergence existed between the recommended components implemented and those actually put into place in each district. Also, by way of explanation, it should be noted that for a total of $5000 per year (3-year minimum contract) Missouri schools having entered into a lease agreement with the Missouri Schools Boards Association were provided the following:

- Satellite antenna and receiver
- Equipment rack containing:
  - 25" monitor
  - Videocassette recorder
  - Data controller/printer (in place but not utilized)
  - Stationary and remote control phone
- Program guide
- Training workshop for coordinators
- Site visit, installation and maintenance
- Reduced rate of $1500 per school GBS subcription fee

All ownership of leased equipment remained with the Missouri School Boards Association.

In addition, Missouri districts participating in a lease agreement with Missouri School Boards Association were responsible for acquiring the following components on their own:

- Phone line installation/modification (where necessary)
- Voice-Based Learning System periferals
- Computers and printer for student use
- All computer periferals including cassette control devices, cassette players, headphones, adaptors, etc.
- Computer modem and telecommunications software
- Subscription fee to OSU's Electronic Mail Service
- Dasher software
- Textbooks, workbooks and audiotapes
- Blank audio and video cassette tapes

The following section highlights the costs incurred by schools implementing German I by Satellite in Missouri and North Dakota. Cost data were provided by ten of the fourteen Missouri schools and, in North Dakota, cost summaries were provided by Mayville State University who provided technical assistance in the purchase and implementation of course components and other equipment.

Costs varied considerably among school districts. This variation was influenced by two factors: (1) the degree to which all equipment and/or course components were implemented in the district; and (2) whether necessary equipment had to be acquired or whether equipment acquired for other prior uses could be jointly shared. For example, most schools had computers prior to implementing the German by Satellite course, therefore requiring limited purchase of new computers, if at all.

Durable items have lives greater than one year; hence, costs must be converted to an annual basis for comparative cost analysis. Because schools varied in their estimates of the useful lives of equipment and software, a determination was made that equipment be assigned a life of seven years and software a life of five years, based on average life estimates by administrators.

Depreciation (annual cost) for the durable items in the equipment and software categories was determined by taking the initial outlay minus salvage value and dividing by the appropriate life of the item.

Table 40 shows the averages for the different cost categories by state and by method of equipment acquisition, e.g., lease vs. purchase. As one would expect, annual equipment costs for those Missouri districts who purchased equipment, as opposed to leasing, were higher ($873 vs. $212), however, additional equipment costs were incurred by Missouri districts having entered into a leasing agreement as *all* equipment required for course delivery was not part of the leasing package. North Dakota schools did not utilize leased equipment in implementing the course.

The recurrent costs differ among the three school classifications. The annual subscription fee of $1750, is included in the recurrent costs of Missouri schools having purchased their equipment. When this difference is accounted for, the recurrent costs are comparable between the Missouri schools who acquired their equipment by purchase and those by lease.

The most meaningful cost statistics are those reflected by the average total costs. North Dakota schools had the lowest average total cost ($5,106), followed by Missouri schools who purchased their equipment ($6,085); leased Missouri systems had annual costs of $8706.

Another cost category on which information was gathered, pertaining to the administrative costs incurred prior to course implementation, included information gathering and decision-making activities associated with the final decision to offer German I by Satellite. The category includes all out-of-pocket expenses such as travel, phone calls, conference expenses, etc., associated with information gathering activities. In addition administrators were asked to quantify their

opportunity costs or value their time spent in these activities. There was considerable variation in the estimates given. The mean estimates, however, for those schools who reported data for this statistic show that the Missouri schools who purchased the various system components had three times the costs incurred by those who leased.

When costs were converted to a per pupil basis, schools who leased had lower average costs per pupil ($848 as compared to $862). This was due to the larger average class size among districts entering into leasing agreements.

Table 40 : COSTS INCURRED BY SCHOOLS IMPLEMENTING GERMAN I BY SATELLITE

	NORTH DAKOTA-PURCHASED		MO-PURCHASED		MO-LEASED	
	Mean per school	Mean per student	Mean per school	Mean per student	Mean per school	Mean per student
Annual Cost						
Equipment*	$478	$74	$873	$93	$212	$20
Software/Texts**	218	34	134	17	226	22
Recurrent Costs***	4410	678	5078	752	3468	330
Lease Costs****	--	--	--	--	5000	476
Total Average Annual Cost	$5106	$786	$6085	$862	$8906	$848
Administrative Overhead***	$236	$36	$618	$66	$214	$20
GRAND TOTAL	$5342	$822	$6703	$928	$9120	$868

EXPLANATIONS:

* Equipment purchased includes: satellite dish and receiver, modem, computers, speaker phone, television, VCR, cassette recorders, cassette control devices, headphones and other computer periferals, and Voice-Based Learning System.
Equipment leased includes: satellite dish and receiver, television, VCR, and stationary/mobile phone
Note: All districts did not purchase (nor utilize) all equipment.

Explanations, cont.

** Software/texts purchased includes: Dasher and telecommunications software, textbooks, and audio cassette tapes

Note: All districts did not purchase (nor utilize) all software. Wortschatz, Diktat, and VBLS software were included as part of the OSU subscription fee.

*** Recurrent costs includes: GBS subscription fee (for purchasing districts only), subscription fee for Electronic Mailbox, workbooks, long distance phone charges associated with satellite course, maintenance and repair of equipment, insurance, class coordinator salary, coordinator training costs, and administrative costs.

**** Lease costs includes: $3500 annual leasing fee plus $1500 course subscription fee for German I

***** Administrative overhead includes: costs associated with time, travel, phone charges, conference fees, etc. of administrators in researching and implementing the German by Satellite course.

V. HOW DO ATTITUDES ABOUT THE COURSE DIFFER AMONG STUDENTS, PARENTS, ADMINISTRATORS AND COORDINATORS, AS WELL AS AMONG SCHOOLS AND BETWEEN STATES?

Student Attitudes

Student interests and preferences can be seen in Table 41 and 42 below. Students generally felt studying foreign language was interesting, but indicated that they preferred traditional instruction over an instruction by satellite class. Ninety-one percent of Missouri students and 89% of North Dakota students indicated they would have enrolled in the course had it been offered traditionally. More than half of all students, however, indicated they liked taking the responsibility for learning themselves.

Slightly over one-fourth of North Dakota students indicated it wasn't their idea to enroll in GBS, but three-fourths said they liked working on the computer.

Two-thirds of Mo-Purchased students--as compared to less than half of Mo-Leased and North Dakota students--felt that the TV broadcasts made the course more exciting. Half of Mo-Purchased students said they didn't learn very much from the TV broadcasts, as compared to approximately one-third of Mo-Purchased and North Dakota students.

Table 41: STUDENT INDICATION OF WHETHER THEY WOULD HAVE ENROLLED IN THE COURSE HAD IT BEEN OFFERED AS A TRADITIONAL CLASS X STATE

	YES	NO
MO-PURCHASED	91%	9%
MO-LEASED	91%	9%
NORTH DAKOTA	85%	15%
	100%	100%

Table 42: PERCENT OF STUDENT AGREEMENT WITH THE FOLLOWING STATEMENTS X STATE

	% of Students Who "Strongly Agree" or "Agree"		
	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
Studying foreign language is interesting	91%	89%	90%
I prefer instruction by satellite over a regular class	24%	9%	17%
I like taking responsibility for learning myself	65%	60%	59%
It wasn't my idea to enroll in German by Satellite	9%	9%	27%
The TV broadcasts make the course more exciting	64%	40%	44%
I don't learn very much from the TV broadcasts	36%	49%	34%
I like working on the computer	64%	68%	76%

Approximately 70% of all students indicated the course was different than they expected (Table 43), but perception about course difficulty and amount of homework required differed between states. More than 80% of Mo-Leased students indicated the class was harder than a regular class in the same subject, as compared to 64% of Mo-Purchased students and 56% of North Dakota students. A slightly greater percentage (24%) of Mo-Purchased students believed there was more homework involved in GBS than in a regular class in the same subject.

Table 43: STUDENT PERCEPTION OF WHETHER THE COURSE IS DIFFERENT THAN EXPECTED?

	YES	NO	NO RESPONSE
MO-PURCHASED	65%	29%	6%
MO-LEASED	71%	29%	0%
NORTH DAKOTA	73%	27%	0%

Table 44: STUDENT PERCEPTION OF COURSE DIFFICULTY X STATE

	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
Easier than a regular class in the same subject	6%	9%	17%
Harder than a regular class in the same subject	64%	83%	56%
About the same difficulty as a regular class in the same subject	30%	9%	27%

Table 45: STUDENT PERCEPTION OF AMOUNT OF HOMEWORK IN COURSE X STATE

	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
More homework than a regular class in the same subject	24%	17%	20%
Less homework than a regular class in the same subject	30%	37%	44%
About the same amount of homework as a regular class in the same subject	46%	46%	37%

Students across North Dakota and Missouri were in general agreement on the course components from which they felt they learned most, with "Textbook" ranking first and "computer software" ranking second, followed by TV lectures, workbook, language tapes, and the Voice-Based Learning System. It is interesting to note, however, that the mean student ranking for "Textbook" was significantly higher for Mo-Purchased schools than for the other schools, indicating a greater diversity among individual student rankings. It is clear that not all students learn the same way or equally through the same instructional methods. Instruction by Satellite appears to be subject to the same limitations.

Table 46: STUDENT RANKING OF COURSE COMPONENTS FROM WHICH THEY INDICATE THEY LEARN MOST X STATE

	Mean Student Ranking (6-point scale) [1 = Learns most; 6 = Learns least]		
	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
TV Lectures	3.4	3.5	3.3
Textbook	2.6	2.0	1.9
Computer software	2.3	2.1	2.4
Voice-based Learning System	4.5	5.1	4.9
Workbook	3.5	3.6	3.1
Language tapes	4.4	4.4	4.4

Parent Attitudes

Parent impressions of GBS differed markedly between Mo-Purchased /North Dakota schools and Mo-Leased schools. Reflecting student attitudes and experiences, only 68% of Mo-Leased parents gave favorable responses when asked about their impression of GBS, as compared to 91% and 90% of Mo-Purchased and North Dakota parents, respectively.

Table 47: PARENT IMPRESSION OF GERMAN BY SATELLITE COURSE X STATE

	FAVORABLE	UNFAVORABLE
MO-PURCHASED	91%	9%
MO-LEASED	68%	32%
NORTH DAKOTA	90%	10%

Mo-Leased parents were also the least likely to have actually seen the GBS course--21% as compared to 44% and 34% for Mo-Purchased and North Dakota parents, respectively.

Table 48: PERCENT OF PARENTS HAVING SEEN THE GERMAN BY SATELLITE COURSE X STATE

	YES	NO
MO-PURCHASED	44%	56%
MO-LEASED	21%	79%
NORTH DAKOTA	34%	66%

Parent perception of course difficulty, interestingly, is very different from that of the students. While three-fourths of the parents of Mo-Leased students indicated they felt the course was easier than a regular class in the same subject, only 9% of the students felt similarly. Similar discrepancies between parent and student perception existed in both Mo-Purchased and North Dakota schools, as well.

Table 49: PARENT PERCEPTION OF COURSE DIFFICULTY X STATE

	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
Easier than a regular class in the same subject	60%	75%	45%
Harder than a regular class in the same subject	4%	0%	13%
About the same difficulty as a regular class in the same subject	36%	21%	42%
NO RESPONSE	0%	4%	0%
	100%	100%	100%

Additional parent attitudes about instruction by Satellite can be seen in Table 50 below. The issue of perceived need for the class may have considerable bearing on parent perceptions. Eighty-four percent (84%) of Mo-Purchased parents strongly agreed with the statement, "Instruction by Satellite classes allow the school to offer classes it could not otherwise offer", as compared to 38% and 40% of Mo-Leased and North Dakota parents, respectively. Likewise, Mo-Purchased parents were more likely to feel that the quality of instruction is better in satellite classes than if a teacher could be hired locally.

Parents of Mo-Leased and North Dakota students were much more likely to believe that students would learn more with a subject-certified teacher present in the classroom, than were parents of Mo-Purchased students.

Table 50: PARENT AGREEMENT WITH STATEMENTS CONCERNING INSTRUCTION BY SATELLITE X STATE

	MO-PURCHASED		MO-LEASED		NORTH DAKOTA	
	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree	Agree
Instruction by Satellite classes allows the school to offer classes it could not otherwise offer	84%	12%	38%	38%	40%	45%
The quality of instruction is better in Satellite classes than it would be if a teacher was hired locally	4%	32%	0%	0%	3%	8%
Students would learn more with a subject-certified teacher present in the classroom	16%	24%	46%	38%	24%	45%
Instruction by Satellite might allow the school to avoid or delay consolidation because of the additions to the curriculum	24%	52%	8%	17%	13%	37%
Satellite instruction is only a passing fad	0%	8%	4%	38%	3%	29%

Mo-Purchased parents saw Instruction by Satellite as an opportunity for avoiding or delaying consolidation with more than three-fourths agreeing with the statement. The issue of consolidation was clearly not a concern for Mo-Leased parents, but half of North Dakota parents believed that Instruction by Satellite may forestall consolidation.

Perception of problems with the course was indicated by 40%, 31%, and 26% of Mo-Leased, Mo-Purchased , and North Dakota parents, respectively.

Table 51: PARENT AWARENESS OF ANY PROBLEMS WITH THE GERMAN BY SATELLITE COURSE

	YES
MO-PURCHASED	31%
MO-LEASED	40%
NORTH DAKOTA	26%

North Dakota parents were much less likely to believe that Satellite classes require higher ability students, but shared other parents beliefs that satellite students are required to be more self-motivated and capable of taking more responsibility for their own learning. North Dakota parents were less likely to feel satellite classes require more effort on the part of the student or that the class is more frustrating for students because they can't always get questions answered quickly.

Table 52: DEGREE OF PARENT AGREEMENT WITH STATEMENTS ABOUT SATELLITE CLASSES X STATE

	MO-PURCHASED		MO-LEASED		NORTH DAKOTA	
	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree	Agree
Satellite Classes:						
Require higher ability students	32%	40%	21%	50%	5%	32%
Require that students are more self-motivated	36%	56%	25%	54%	32%	58%
Require that students take more responsibility for their own learning	52%	40%	38%	46%	32%	55%
Require more effort on the part of the student	40%	52%	25%	58%	21%	55%
Are more frustrating for students because they can't always get questions answered quickly	12%	52%	42%	29%	24%	34%

Coordinator Attitudes

Coordinators of the GBS course in Missouri and North Dakota were asked their opinion of why students had dropped the class. The reason most often cited by coordinators in Mo-Purchased and North Dakota schools was that the students were concerned about the class lowering their GPA or class rank. Mo-Leased coordinators, on the other hand, were more likely to cite course difficulty as the major reason for dropping out.

North Dakota coordinators were much less likely to cite lack of student motivation and too high expectations for students as reasons for dropping out, but were much more likely to believe student discomfort with a televised class and too much homework were contributing factors to dropping out.

Mo-Leased coordinators were much more likely to believe that student frustration from not having a teacher in the classroom and the inability to get questions answered as they arose were primary causes for students dropping out.

Table 53: PERCENT OF STUDENTS BY COORDINATOR ASSESSMENT OF WHY STUDENTS DROPPED X STATE

	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
Course was too difficult	59%	66%	17%
Students were not motivated to learn	53%	50%	37%
Students felt too much was expected of them	47%	30%	20%
Conflict with coordinator	0%	0%	0%
Students were uncomfortable with a televised class	0%	0%	37%
Students felt they were not learning	0%	14%	17%
Students were concerned about the class lowering their GPA or class rank	79%	30%	51%
Students felt the grading was too low	0%	14%	0%
Students were frustrated by not having a teacher in the classroom	12%	52%	20%
Students could not get questions answered as they arose	12%	52%	0%
Students felt there was too much homework	0%	0%	32%
Students disliked using computers	12%	0%	0%
Students felt the class was a waste of time	0%	0%	0%

As Table 54 below indicates, only 85% of the North Dakota students were enrolled in schools which made a special effort to encourage students to remain in the class

Table 54: PERCENT OF STUDENTS BY WHETHER COORDINATOR INDICATED THERE WAS A SPECIAL EFFORT MADE TO ENCOURAGE STUDENTS TO REMAIN IN CLASS X STATE

	YES	NO
MO-PURCHASED	100%	0%
MO-LEASED	100%	0%
NORTH DAKOTA	85%	15%

Varying coordinator opinions are evident when comparing levels of agreement with selected statements about the German by Satellite class. Coordinators of 68% of the Mo-Purchased students *disagreed* with the statement, "GBS students generally learn less than they would in a regular class". All coordinators in Mo-Leased schools indicated that GBS students were frustrated by not having a subject-knowledgeable teacher in the classroom as compared to coordinators of 32% of the students in Mo-Purchased schools and 12% of the students in North Dakota schools.

The coordinators of approximately one-half of the students across both states felt that the students did not want to put forth the effort required of them.

When asked to indicate their agreement with the statement that GBS gives students the opportunity to learn more than they may in a traditional German class, more than three-fourths agreed, however the coordinators in Mo-Leased schools were much more likely to "Strongly Agree" than their counterparts in other districts.

Perhaps most informative of this series of attitudinal questions is the coordinator reaction as to whether or not German by Satellite is the only alternative available for offering foreign language in the school. While the coordinators of 77% of Mo-Leased students either agreed or strongly agreed with the statement, no coordinators of Mo-Purchased students and only the coordinators of 42% of North Dakota students did so.

Table 55 : PERCENT OF STUDENTS BY COORDINATOR AGREEMENT WITH SELECTED STATEMENTS X STATE

	MO-PURCHASED		MO-LEASED		NORTH DAKOTA	
German by Satellite	Agree	Disagree	Agree	Disagree	Agree	Disagree
students generally:						
Learn less than they would in a regular class	12%	68%	64%	23%	78%	20%
Are frustrated by not having a subject-knowledgeable teacher in the classroom	32%	26%	100%	0%	12%	49%
Do not want to put forth the effort required of them	42%	47%	43%	0%	51%	25%
The German by Satellite Course:						
Gives students the opportunity to learn more than they may in a traditional German class	47%	32%	87%	0%	63%	17%
Is the only alternative available for offering foreign language in the school	0%	41%	77%	23%	42%	27%
Is better than no course course at all	80%	0%	100%	0%	100%	0%

NOTE: This table does not include those responses given as "Undecided", "Don't Know", or "No Response", therefore totals will not always equal 100%.

While the coordinators of slightly over half of Mo-Purchased and North Dakota students felt there were aspects of the course which needed improvement, ALL Mo-Leased coordinators indicated improvements were needed.

Table 56: PERCENT OF STUDENTS BY COORDINATOR PERCEPTION OF WHETHER THERE ARE ASPECTS OF THE COURSE WHICH NEED IMPROVEMENT X STATE

	YES	NO	NO RESP	TOTAL
MO-PURCHASED	53%	47%	0%	100%
MO-LEASED	100%	0%	0%	100%
NORTH DAKOTA	53%	32%	15%	100%

Administrator Attitudes

All administrators were asked to assess their own current attitudes regarding the German by Satellite class as well as those of their school board, principal, counselor, faculty, course coordinator, enrolled students, non-enrolled students, and parents/community. Table 57 details their responses as the percentage of students involved.

Table 57: ADMINISTRATOR ASSESSMENT OF CURRENT ATTITUDES AS PERCENTAGE OF STUDENTS INVOLVED BY STATE

THE SCHOOL BOARD:	STRONGLY FAVORABLE	FAVOR-ABLE	INDIF-FERENT	OPPOSED	STRONGLY OPPOSED
MO-PURCHASED	43%	57%	--	--	--
MO-LEASED	25%	75%	--	--	--
NORTH DAKOTA	32%	68%	--	--	--
SUPERINTENDENT:	STRONGLY FAVORABLE	FAVOR-ABLE	INDIF-FERENT	OPPOSED	STRONGLY OPPOSED
MO-PURCHASED	73%	27%	--	--	--
MO-LEASED	55%	45%	--	--	--
NORTH DAKOTA	46%	54%	--	--	--
HIGH SCHOOL PRINCIPAL:	STRONGLY FAVORABLE	FAVOR-ABLE	INDIF-FERENT	OPPOSED	STRONGLY OPPOSED
MO-PURCHASED	48%	52%	--	--	--
MO-LEASED	55%	31%	14%	--	--
NORTH DAKOTA	46%	54%	--	--	--
HIGH SCHOOL COUNSELOR:	STRONGLY FAVORABLE	FAVOR-ABLE	INDIF-FERENT	OPPOSED	STRONGLY OPPOSED
MO-PURCHASED	48%	27%	25%	--	--
MO-LEASED	55%	45%	--	--	--
NORTH DAKOTA	32%	68%	--	--	--

THE FACULTY:

	STRONGLY FAVORABLE	FAVOR-ABLE	INDIF-FERENT	OPPOSED	STRONGLY OPPOSED
MO-PURCHASED	48%	52%	--	--	--
MO-LEASED	25%	41%	33%	--	--
NORTH DAKOTA	32%	68%	--	--	--

COURSE COORDINATOR:

	STRONGLY FAVORABLE	FAVOR-ABLE	INDIF-FERENT	OPPOSED	STRONGLY OPPOSED
MO-PURCHASED	73%	27%	--	--	--
MO-LEASED	37%	63%	--	--	--
NORTH DAKOTA	66%	34%	--	--	--

ENROLLED STUDENTS:

	STRONGLY FAVORABLE	FAVOR-ABLE	INDIF-FERENT	OPPOSED	STRONGLY OPPOSED
MO-PURCHASED	25%	75%	--	--	--
MO-LEASED	0%	100%	--	--	--
NORTH DAKOTA	32%	49%	20%	--	--

NON-ENROLLED STUDENTS:

	STRONGLY FAVORABLE	FAVOR-ABLE	INDIF-FERENT	OPPOSED	STRONGLY OPPOSED
MO-PURCHASED	0%	82%	18%	--	--
MO-LEASED	0%	0%	100%	--	--
NORTH DAKOTA	32%	51%	17%	--	--

PARENTS/COMMUNITY:

	STRONGLY FAVORABLE	FAVOR-ABLE	INDIF-FERENT	OPPOSED	STRONGLY OPPOSED
MO-PURCHASED	25%	75%	--	--	--
MO-LEASED	0%	100%	--	--	--
NORTH DAKOTA	51%	49%	--	--	--

Superintendents generally indicated either "Favorable" or "Strongly Favorable" responses to the German by Satellite class for all of the persons whose opinions they were asked to assess. Several opinions stand out however. Superintendents in Mo-Purchased districts expressed more favorable attitudes toward GBS than other superintendents. Likewise their assessment of Coordinator attitudes were also more favorable than in Mo-Leased or North Dakota districts. The indifference indicated among Mo-Leased faculty and non-enrolled students is most likely a reflection of the size of the districts. Students in larger districts are less apt to be involved in or knowledgeable of alternative class delivery systems. The indifference of 20% of North Dakota students enrolled in the course, on the other hand, can be interpreted as reflective of those students who were in effect "drafted" for the course, having indicated that it was not <u>their</u> idea to enroll.

Administrator satisfaction with various course components is listed in Tables 58 and 59 below. Table 58 delineates the percentage of students whose administrator indicated satisfaction, dissatisfaction, or indecision (no response or undecided) with each course component listed. Table 59 delineates the level of satisfaction, e.g., "very satisfied" or "satisfied" with each component.

While nearly all Missouri administrators expressed satisfaction with the course as a whole and the overall quality of instruction, the administrators of 17% of the North Dakota students expressed dissatisfaction with both. No fault was found on the part of any administrator with the technical quality of the course. Upon closer scrutiny, however, Mo-Purchased administrators were much more likely to say they were "Very Satisfied" than were Mo-Leased administrators.

North Dakota administrators were much less likely than Missouri administrators to be satisfied with the level of difficulty of the course and with the amount of knowledge students gained from the course, perhaps attributable to a different level of expectations for students existing between the states OR a result of taped vs. live course format. They were also somewhat less satisfied with their access to technical support.

Satisfaction with ease of supervision, equipment upkeep and maintenance, and support from OSU was much less likely of Mo-Leased administrators.

Mo-Purchased administrators were less likely to be satisfied with the support of the State Department of Education and with the "fit" of the course with the existing curriculum.

Table 58: PERCENT OF STUDENTS BY VARYING LEVELS OF ADMINISTRATOR SATISFACTION X STATE

	MO-PURCHASED			MO-LEASED			NORTH DAKOTA		
	Satis-fied	Dis-satis-fied	NR/ Unde-cided	Satis-fied	Dis-satis-fied	NR/ Unde-cided	Satis-fied	Dis-Satis-fied	NR/ Unde-cided
The course as a whole	88%	--	12%	100%	--	--	83%	17%	--
Overall quality of instruction	100%	--	--	100%	--	--	83%	17%	--
Technical quality of course	100%	--	--	100%	--	--	100%	--	--
Cost as compared to other alternatives	82%	9%	9%	59%	--	41%	90%	--	10%
Level of difficulty	89%	11%	--	80%	--	20%	54%	17%	29%
Ease of supervision	91%	--	9%	67%	20%	13%	100%	--	--
Course content	100%	--	--	80%	--	20%	83%	17%	--
Access to technical support	89%	11%	--	71%	--	29%	66%	20%	14%
Equipment upkeep and maintainence	91%	--	9%	59%	--	41%	80%	--	20%
Ease of equipment operation	91%	--	9%	88%	--	12%	80%	--	20%
Technical reliability of equipment	91%	--	9%	88%	--	12%	83%	--	17%
Your equipment supplier	89%	11%	--	88%	--	12%	100%	--	--
Support from Oklahoma State University	89%	11%	--	59%	--	41%	83%	17%	--
Support from State Department of Education or Public Instruction	50%	25%	25%	69%	20%	11%	83%	15%	2%
"Fit" with existing school curriculum	73%	11%	16%	100%	--	--	83%	17%	--
Amount of knowledge students are gaining	89%	11%	--	80%	--	20%	63%	17%	20%

When comparing the degree of satisfaction of participating administrators, a difference can be seen among schools. The mean percentage of "Very Satisfied" responses for Mo-Purchased schools is 48% and 41% for North Dakota schools, while the administrators of only 13% of the students in Mo-Leased schools were "Very Satisfied". Mo-Purchased administrators were much more likely to indicate they were "Very Satisfied" on every course component except "Support from State Department". North Dakota administrators were more likely than Mo-Purchased administrators to indicate they were "Very Satisfied" on "Technical reliability of equipment", "Support from State Department", and "Fit with existing curriculum".

Table 59: PERCENT OF STUDENTS BY ADMINISTRATOR DEGREE OF SATISFACTION WITH COURSE COMPONENTS X STATE

	MO-PURCHASED		MO-LEASED		NORTH DAKOTA	
	Very Satisfied	Satisfied	Very Satisfied	Satisfied	Very Satisfied	Satisfied
The course as a whole	52%	36%	25%	75%	32%	51%
Overall quality of instruction	84%	16%	25%	75%	71%	12%
Technical quality of course	82%	18%	25%	75%	32%	68%
Cost as compared to other alternatives	39%	43%	14%	45%	32%	59%
Level of difficulty	36%	52%	--	80%	32%	22%
Ease of supervision	36%	55%	--	67%	32%	68%
Course content	48%	52%	--	80%	49%	34%
Access to technical support	52%	36%	--	71%	34%	32%
Equipment upkeep and maintainence	55%	36%	20%	39%	34%	46%
Ease of equipment operation	39%	52%	0%	88%	34%	46%
Technical reliability of equipment	39%	52%	20%	69%	54%	32%

Table 59 (cont): PERCENT OF STUDENTS BY ADMINISTRATOR DEGREE OF SATISFACTION WITH COURSE COMPONENTS X STATE

	MO-PURCHASED		MO-LEASED		NORTH DAKOTA	
	Very Satisfied	Satisfied	Very Satisfied	Satisfied	Very Satisfied	Satisfied
Your equipment supplier	36%	52%	20%	69%	34%	66%
Support from Oklahoma State University	80%	9%	14%	45%	54%	29%
Support from State Department of Education or Public Instruction	--	50%	--	69%	32%	51%
"Fit" with existing school curriculum	36%	36%	25%	75%	46%	37%
Amount of knowledge students are gaining	57%	32%	25%	55%	46%	17%
Average	48%	39%	13%	67%	41%	42%

Administrator assessment of course characteristics as advantageous or disadvantageous is detailed in Table 60. Of interest is the difference in perception between schools with respect to several course characteristics. While Mo-Purchased schools were much more likely to consider most course components as advantageous, other administrators were less likely to do so. Size-neutral courses, overall flexibility of courses, quality of instruction, and use of a video-based medium were all considered by Mo-Purchased administrators to be much more of an advantage. North Dakota administrators were more likely to consider the level of course difficulty as an advantage. The overall flexibility of the course was considered to be an overwhelming disadvantage by Mo-Leased administrators.

Table 60: ADMINISTRATOR ASSESSMENT OF COURSE CHARACTERISTICS AS ADVANTAGEOUS OR DISADVANTAGEOUS BY PERCENT OF STUDENTS AFFECTED X STATE

	MO-PURCHASED			MO-LEASED			NORTH DAKOTA		
	Advantage	Disadvantage	NR	Advantage	Disadvantage	NR	Advantage	Disadvantage	NR
Ability to drop or add course from year to year	100%	--	--	67%	14%	20%	100%	--	--
Curriculum expansion opportunity	100%	--	--	100%	--	--	100%	--	--
Courses are not class-size dependent	100%	--	--	51%	--	49%	63%	--	37%
Overall flexibility of courses	87%	11%	--	12%	88%	--	60%	20%	20%
Quality of instruction	100%	--	--	37%	--	63%	81%	17%	2%
Level of difficulty of course	64%	11%	25%	37%	20%	43%	80%	--	20%
Use of a video-based medium	75%	9%	16%	25%	14%	61%	49%	34%	17%

Apart from other indications of problems or successes, administrators were asked whether they would recommend the instruction by satellite technology to other districts. All Mo-Leased and North Dakota administrators indicated they would recommend the technology, while the administrators of 89% of Mo-Purchased students indicated they would do likewise. Certainly this would indicate a widespread interest in and acceptance of the technology.

Table 61: ADMINISTRATOR INDICATION OF WHETHER THEY WOULD RECOMMEND THE TECHNOLOGY TO OTHER DISTRICTS BY PERCENTAGE OF STUDENTS INVOLVED X STATE

	YES	NO
MO-PURCHASED	89%	11%
MO-LEASED	100%	0%
NORTH DAKOTA	100%	0%

VI. DO LIVE VS. TAPED FORMATS CONTRIBUTE TO DIFFERENTIAL COURSE IMPLEMENTATION METHODS, STUDENT SUCCESS RATES, AND/OR STUDENT-PARENT ATTITUDES?

It can be hypothesized that the degree to which a satellite course is viewed live may have significant bearing on other aspects of the course and on student success and/or attitudes toward the class. North Dakota predominantly uses a taped format, as 89% of the students do not view the live course broadcast. Thirty-six percent (36%) of Mo-Purchased and 21% of Mo-Leased students view taped broadcasts, as well.

Table 62: PERCENT OF STUDENTS ENROLLED BY TAPED OR LIVE FORMAT

	TAPED	LIVE
MO-PURCHASED	36%	64%
MO-LEASED	21%	79%
NORTH DAKOTA	89%	11%

As can be seen from Table 63 below, student persistence (e.g., course completion) rates are markedly higher for students viewing the course live than for those using a taped format.

Table 63: AVERAGE STUDENT PERSISTENCE RATE BY CLASS FORMAT X STATE

	STUDENT PERSISTENCE RATE	
	TAPED FORMAT	LIVE FORMAT
MO-PURCHASED	58%	80%
MO-LEASED	55%	88%
MO-NORTH DAKOTA	82%	100%

Likewise, the subjective assessment of how much students have learned is rated higher among coordinators of students enrolled in the live course in Mo-Leased and North Dakota schools. Among Mo-Purchased districts using a live broadcast format, however, are the coordinators of 25% of the students who feel their students have not learned as much as they should have.

Table 64: PERCENT OF STUDENTS BY COORDINATOR ASSESSMENT OF HOW MUCH STUDENTS HAVE LEARNED IN THE GERMAN BY SATELLITE CLASS BY TAPED/LIVE COURSE FORMAT X STATE

	TAPED				LIVE			
	MO-PUR	MO-LEASED	ND	TOTAL	MO-PUR	MO-LEASED	ND	TOTAL
A great deal	0%	0%	62%	44%	25%	37%	100%	38%
An acceptable amount	100%	0%	9%	25%	50%	11%	0%	26%
Not as much as I think they should have by now	0%	100%	29%	31%	25%	53%	0%	36%

Student grade differentials by taped/live format can be seen in Tables 65 and 66. Within the limits of the data available, findings would suggest that grades for both first and second semesters were higher in live vs. taped formats in both Missouri and North Dakota schools.

Table 65: FIRST SEMESTER GERMAN GRADES BY TAPED/LIVE FORMAT BY STATE

	MO-PURCHASED		MO-LEASED		NORTH DAKOTA	
Grade	Taped	Live	Taped	Live	Taped	Live
"A"	44%	63%	25%	53%	46%	25%
"B"	--	31%	--	37%	18%	75%
"C"	11%	--	--	--	7%	--
"D"	--	6%	--	--	--	--
No Response	44%	--	75%	10%	29%	--
	100%	100%	100%	100%	100%	100%

Table 66: SECOND SEMESTER GERMAN GRADES BY TAPED/LIVE FORMAT BY STATE

	MO-PURCHASED		MO-LEASED		NORTH DAKOTA	
Grade	Taped	Live	Taped	Live	Taped	Live
"A"	33%	63%	--	41%	32%	25%
"B"	11%	31%	--	47%	29%	75%
"C"	22%	--	--	--	11%	--
"D"	--	6%	--	--	--	--
No Response	33%	--	100%	12%	28%	--
	100%	100%	100%	100%	100%	100%

Contrary to the above findings, however, are the raw achievement test scores which are somewhat higher for students viewing taped, rather than live, broadcasts regardless of state. Two factors may explain this apparent dichotomy: (1) Because the numbers of students were small when

broken out by state, format, and score, the results may be spurious; and (2) the standardized achievement test may do a much better job of measuring student intelligence, test-taking skills, and prior experience with foreign language than it does the amount of German acquired in the course. In short, a number of intervening variables influence student achievement; hence, multivariate analysis (as will be covered in Report III) is required to gain further insight into these relationships.

Table 67: AVERAGE STUDENT RAW ACHIEVEMENT SCORES ON GERMAN TEST BY CLASS FORMAT X STATE

	AVERAGE RAW SCORE	
	TAPED	LIVE
MO-PURCHASED	41	34
MO-LEASED	32	25
NORTH DAKOTA	43	22

Little difference can be seen among schools with taped vs. live formats in terms of student enrollment restrictions. Of more importance, it would seem, is the difference between Mo-Purchased and Mo-Leased schools and their use of grade- and ability-restricted enrollment without reference to a taped/live format. With respect to class size restrictions, Missouri schools utilizing live class formats were more likely to place limits on the size of the class (minimum or maximum), while North Dakota schools utilizing taped formats were more likely to place class size limits. One point bears further analysis, however. *All* Mo-Leased schools utilizing taped format chose not to restrict enrollment in any way. This appears to be consonant with the hypothesis arising from other data that some schools intended to purchase or believed that they were purchasing a "complete package", much like as if they were enrolling students in a correspondence course. Without understanding the necessity of assuring all input variables were in place, (e.g., trained coordinator in the classroom, interactive access to professor, student computer use, etc.), some schools believed that this was "just another course".

Table 68: PERCENT OF STUDENTS BY STATE FOR WHOM THERE WERE ENROLLMENT RESTRICTIONS BY TAPED/LIVE CLASS FORMAT

	IMPOSED **GRADE** LEVEL RESTRICTIONS ON ENROLLMENT			
	TAPED		LIVE	
	Yes	No	Yes	No
MO-PURCHASED	67%	33%	50%	50%
MO-LEASED	0%	100%	47%	53%
NORTH DAKOTA	100%	0%	100%	0%

	IMPOSED **ABILITY** LEVEL RESTRICTIONS ON ENROLLMENT			
	TAPED		LIVE	
	Yes	No	Yes	No
MO-PURCHASED	67%	33%	50%	50%
MO-LEASED	0%	100%	11%	89%
NORTH DAKOTA	100%	0%	100%	0%

	IMPOSED **CLASS SIZE** RESTRICTIONS ON ENROLLMENT			
	TAPED		LIVE	
	Yes	No	Yes	No
MO-PURCHASED	0%	100%	50%	50%
MO-LEASED	0%	100%	37%	63%
NORTH DAKOTA	44%	56%	0%	100%

	% OF STUDENTS WITH **NO RESTRICTIONS** PLACED ON ENROLLMENT	
	TAPED	LIVE
MO-PURCHASED	33%	25%
MO-LEASED	100%	53%
NORTH DAKOTA	0%	0%

The attitudes of persons (as assessed by the superintendent) can be seen in Table 69. Perhaps of most significance is the overwhelming difference in attitude of superintendents themselves between schools utilizing live vs. taped formats. Across both states those superintendents

in schools viewing the course live were much more favorable in their attitudes about the course. Similarly, Mo-Purchased and North Dakota superintendents were more strongly favorable about the course than were superintendents in Mo-Leased schools. Superintendents' assessment of student attitudes, however, showed that "Strongly Favorable" attitudes were more likely to occur in taped formats among Mo-Purchased and North Dakota schools, while no students in Mo-Leased schools were judged by the superintendent to be "Strongly Favorable" regardless of format used.

Table 69: ATTITUDES ABOUT INSTRUCTION BY SATELLITE CLASS BY PERCENT OF STUDENTS IN TAPED/LIVE CLASS FORMAT BY STATE

SCHOOL BOARD	TAPED			LIVE		
	Strongly Favorable	Favorable	Indifferent	Strongly Favorable	Favorable	Indifferent
MO-PURCHASED	67%	33%	--	25%	75%	--
MO-LEASED	0%	100%	--	0%	100%	--
NORTH DAKOTA	38%	62%	--	0%	100%	

SUPERINTENDENT	TAPED			LIVE		
	Strongly Favorable	Favorable	Indifferent	Strongly Favorable	Favorable	Indifferent
MO-PURCHASED	33%	67%	--	100%	0%	--
MO-LEASED	0%	100%	--	53%	47%	--
NORTH DAKOTA	38%	62%	--	100%	0%	--

HIGH SCHOOL PRINCIPAL	TAPED			LIVE		
	Strongly Favorable	Favorable	Indifferent	Strongly Favorable	Favorable	Indifferent
MO-PURCHASED	0%	100%	--	75%	25%	--
MO-LEASED	0%	100%	--	53%	37%	11%
NORTH DAKOTA	38%	62%	--	100%	0%	--

COURSE COORDINATOR	TAPED			LIVE		
	Strongly Favorable	Favorable	Indif-ferent	Strongly Favorable	Favorable	Indif-ferent
MO-PURCHASED	100%	0%	--	75%	25%	--
MO-LEASED	100%	0%	--	0%	100%	--
NORTH DAKOTA	62%	38%	--	100%	0%	--

ENROLLED STUDENTS	TAPED			LIVE		
	Strongly Favorable	Favorable	Indif-ferent	Strongly Favorable	Favorable	Indif-ferent
MO-PURCHASED	66%	33%	--	0%	100%	--
MO-LEASED	0%	100%	--	0%	100%	--
NORTH DAKOTA	38%	41%	21%	0%	100%	--

Superintendents were also asked to indicate their level of satisfaction with the overall course and with its level of difficulty. In terms of general satisfaction level, superintendents in Mo-Purchased schools were most satisfied--regardless of taped or live format used--followed by North Dakota and then Mo-Leased.

Superintendent satisfaction with level of course difficulty varied greatly. While 75% of superintendents in Mo-Purchased schools using a *live* format were "Very Satisfied", all Mo-Leased superintendents using a *taped* format were "Very Satisfied" with the level of course difficulty. The only real measure of dissatisfaction arose in North Dakota where 35% of the superintendents using a taped format were "Indifferent" and 18% were "Dissatisfied". A word of interpretation, however--while North Dakota dissatisfaction was largely based on the perceived lack of academic rigor in the course, lower satisfaction levels in Missouri were based on the perception that the course was "too hard". This finding appears to temper other information gathered in the study as well. It is probable that the expectations of North Dakota administrators--and students--are different from their Missouri counterparts. These views are influenced by such factors as school size, degree of student motivation, existing level of instruction in the schools, etc. These issues will be dealt with further in a subsequent report.

Table 70: PERCENT OF STUDENTS BY ADMINISTRATOR SATISFACTION LEVEL WITH INSTRUCTION BY SATELLITE COURSE X STATE

OVERALL COURSE	TAPED			LIVE		
	Very Satisfied	Satisfied	Dissat-isfied	Very Satisfied	Satisfied	Dissat-isfied
MO-PURCHASED	100%	--	--	25%	75%	--
MO-LEASED	--	100%	--	--	100%	--
NORTH DAKOTA	38%	44%	18%	--	100%	--
LEVEL OF DIFFICULTY	**TAPED**			**LIVE**		
	Very Satisfied	Satisfied	Dissat-isfied	Very Satisfied	Satisfied	Dissat-isfied
MO-PURCHASED	--	100%	--	75%	25%	--
MO-LEASED	100%	--	--	63%	37%	--
NORTH DAKOTA	38%	9%	18%*	--	100%	--

* There was an additional 35% rated as "Indifferent".

Software usage, in addition to other course inputs, can serve as another basis upon which participating schools can be differentiated. Coordinators were asked to assess the frequency of usage of the following components among their students. Software usage generally appears to be more frequent in live vs. taped formats, as does the use of audiotapes and frequency of interaction with the instructor. Other key points which emerge are the non-usage of the two primary pieces of instructional software by 40% of Mo-Leased students in schools utilizing a taped format. This further corrorborates the hypothesis that some schools have not fully implemented the course as intended. The use of the Voice-Based Learning System is certainly not universal in Mo-Leased or North Dakota schools. Coordinator indication of *no* interactive student-instructor contact in Mo-Leased schools using a taped format further supports the concern that the Instruction by Satellite course may not be realizing its potential because of improper or incomplete implementation.

Table 71: PERCENT OF STUDENTS BY COORDINATOR ASSESSMENT OF FREQUENCY OF USE OF COURSE COMPONENTS BY TAPED/LIVE CLASS FORMAT X STATE

DASHER SOFTWARE	TAPED			LIVE		
	Never	Less than Once/wk	Once/wk or more	Never	Less than Once/wk	Once/wk or more
MO-PURCHASED	--	--	100%	--	--	100%
MO-LEASED	40%	--	60%	--	--	100%
NORTH DAKOTA	--	29%	71%	--	--	100%

WORTSCHATZ SOFTWARE	TAPED			LIVE		
	Never	Less than Once/wk	Once/wk or more	Never	Less than Once/wk	Once/wk or more
MO-PURCHASED	--	33%	67%	--	--	100%
MO-LEASED	40%	--	60%	--	--	100%
NORTH DAKOTA	--	29%	71%	--	--	100%

DIKTAT SOFTWARE	TAPED			LIVE		
	Never	Less than Once/wk	Once/wk or more	Never	Less than Once/wk	Once/wk or more
MO-PURCHASED	--	100%	--	--	50%	50%
MO-LEASED	--	--	100%	--	100%	--
NORTH DAKOTA	--	96%	4%	--	--	100%

VBLS SOFTWARE	TAPED			LIVE		
	Never	Less than Once/wk	Once/wk or more	Never	Less than Once/wk	Once/wk or more
MO-PURCHASED	--	33%	67%	--	100%	--
MO-LEASED	--	100%	--	11%	89%	--
NORTH DAKOTA	6%	56%	38%	--	100%	--

USE OF AUDIOTAPES WITH WORTSCHATZ SOFTWARE:	TAPED			LIVE		
	Never	Less than Once/wk	Once/wk or more	Never	Less than Once/wk	Once/wk or more
MO-PURCHASED	67%	33%	--	50%	50%	--
MO-LEASED	40%	60%	--	11%	89%	--
NORTH DAKOTA	44%	56%	--	--	100%	--

CALL IN QUESTIONS	TAPED			LIVE		
	Never	Less than Once/wk	Once/wk or more	Never	Less than Once/wk	Once/wk or more
MO-PURCHASED	--	100%*	--	--	100%*	--
MO-LEASED	100%	--	--	--	100%	--
NORTH DAKOTA	--	100%*	--	--	100%*	--

*NOTE: Although all coordinators report that their students called in questions from Mo-Purchased and North Dakota schools, the frequency of call-ins was greater in "Live" formats, e.g., 2-3 times per month as compared to "Rarely" or "Once per month".

Coordinator assessment of why students dropped from the course is detailed in Table 72 below, comparing the responses in taped vs. live situations. Generally, it can be seen that issues of course difficulty (except for Mo-Purchased schools), student motivation, student frustration with not having a teacher in the classroom, and inability to get questions answered as they arose occurred more frequently in taped formats. It is also noted that there is significant divergence among schools with respect to the most often reported reasons for dropping out. While North Dakota coordinators in taped formats see inability to get questions answered as they arise and student concern with lowered GPA as the primary reasons for dropping out, Mo-Leased coordinators in taped formats focused on course difficulty and lack of student motivation. Mo-Purchased coordinators indicated student motivation as the primary reason for dropping out in taped situations, while student concern about lowered GPA was the primary reason in live formats. It is also significant to point out that, while representing only 11% of the total students enrolled in the course in the state, no students apparently dropped out of North Dakota schools utilizing a live format.

Table 72: PERCENT OF STUDENTS BY COORDINATOR ASSESSMENT OF WHY STUDENTS DROPPED THE COURSE BY TAPED/LIVE COURSE FORMAT X STATE

	TAPED				LIVE			
	MO-PUR	MO-LEASED	ND	TOTAL	MO-PUR	MO-LEASED	ND	TOTAL
Course was too difficult	33%	100%	18%	29%	75%	47%	0%	54%
Students were not motivated to learn	100%	100%	42%	58%	25%	37%	0%	28%
Students felt too much was expected of them	0%	60%	24%	23%	75%	11%	0%	36%
Conflict with coordinator	0%	0%	0%	0%	0%	0%	0%	0%
Students were uncomfortable with a televised class	0%	0%	41%	29%	0%	0%	0%	0%
Students felt they were not learning	0%	60%	18%	19%	0%	0%	0%	0%
Students were concerned about the class lowering their GPA or class rank	33%	60%	62%	56%	100%	11%	0%	46%
Students felt the grading was too low	0%	60%	0%	6%	0%	0%	0%	0%
Students were frustrated by not having a teacher in the classroom	33%	40%	24%	27%	0%	47%	0%	23%
Students could not get questions answered as they arose	33%	40%	82%	69%	0%	47%	0%	23%
Students felt there was too much homework	0%	0%	38%	27%	0%	0%	0%	0%
Students disliked using computers	33%	0%	0%	6%	0%	0%	0%	0%
Students felt the class was a waste of time	0%	0%	0%	0%	0%	0%	0%	0%

Coordinator attitudes regarding students and the course are detailed in Table 73. The responses of coordinators in schools utilizing a taped format are generally more negative than those in live format classrooms.

Students in live formats are more likely to be seen as the "problem" in Mo-Purchased schools, i.e., they do not want to put forth the effort required of them, as compared to Mo-Leased and North Dakota schools. The perception of having the opportunity to learn *more* than in a traditional German class is more likely to be held by coordinators in Missouri schools with live formats, but is not shared by North Dakota coordinators. Frustration with not having a teacher in the classroom is far less evident in North Dakota, where the coordinator is more likely to have some knowledge of German, and is non-existent in Mo-Purchased schools utilizing a live format.

Table 73: PERCENT OF STUDENTS BY COORDINATOR AGREEMENT OR DISAGREEMENT WITH THE FOLLOWING STATEMENTS BY TAPED/LIVE COURSE FORMAT X STATE

	MO-PURCHASED STUDENTS					
	TAPED			LIVE		
	AGREE	UNDECIDED	DISAGREE	AGREE	UNDECIDED	DISAGREE
GBS students generally:						
Learn less than they would in a regular class	33%	67%	0%	0%	0%	100%
Are frustrated by not having a subject-knowledgeable teacher in the classroom	100%	0%	0%	0%	50%	50%
Do not want to put forth the effort required of them	0%	33%	67%	50%	0%	50%
Have the opportunity to learn more than in a traditional German class	0%	67%	33%	75%	0%	25%

Table 73 (cont): PERCENT OF STUDENTS BY COORDINATOR AGREEMENT OR DISAGREEMENT WITH THE FOLLOWING STATEMENTS BY TAPED/LIVE COURSE FORMAT X STATE

	MO-LEASED STUDENTS					
	TAPED			LIVE		
	AGREE	UNDECIDED	DISAGREE	AGREE	UNDECIDED	DISAGREE
GBS students generally:						
Learn less than they would in a regular class	60%	40%	0%	63%	0%	37%
Are frustrated by not having a subject-knowledgeable teacher in the classroom	100%	0%	0%	100%	0%	0%
Do not want to put forth the effort required of them	100%	0%	0%	11%	89%	0%
Have the opportunity to learn more than in a traditional German class	60%	40%	0%	100%	0%	0%

	NORTH DAKOTA STUDENTS					
	TAPED			LIVE		
	AGREE	UNDECIDED	DISAGREE	AGREE	UNDECIDED	DISAGREE
GBS students generally:						
Learn less than they would in a regular class	73%	3%	24%	100%	0%	0%
Are frustrated by not having a subject-knowledgeable teacher in the classroom	15%	29%	56%	0%	100%	0%
Do not want to put forth the effort required of them	59%	12%	29%	0%	100%	0%
Have the opportunity to learn more than in a traditional German class	76%	6%	18%	0%	100%	0%

A major course input is the extent to which the coordinator performs many duties associated with the course. Table 74 compares the coordinator duties performed in taped vs. live situations both in the perception of the coordinator and of the student. Without reference to differentiation by state, it does appear that student perceptions of duties

performed by the coordinator do differ from those of the coordinator in many aspects. Generally it does appear that both coordinators and students are more likely to indicate that more coordinator duties are performed in schools with live rather than taped formats. Among coordinator responses, there were eight duties more likely to be performed in live classrooms and only three duties more often performed in taped classrooms; among students responses, there were nine duties more likely to performed in live classrooms as compared to four in taped classes. This can be interpreted as additional evidence supporting the value of live broadcast situations.

Table 74: PERCENT OF STUDENTS BY STUDENT AND COORDINATOR ASSESSMENT OF COORDINATOR DUTIES PERFORMED BY TAPED/LIVE COURSE FORMAT BY STATE

	% OF STUDENTS FOR WHOM COORDINATOR IS CURRENTLY PERFORMING DUTY...			
	ACCORDING TO COORDINATOR		ACCORDING TO STUDENTS	
	TAPED	LIVE	TAPED	LIVE
Motivating students to do well	94%	100%	93%	97%
Maintaining discipline	100%	100%	91%	100%
Assisting students with use of software	90%	82%	83%	69%
Assisting students with modem or electronic mail	6%	46%	22%	31%
Encouraging students to access the professor	73%	79%	67%	83%
Coordinating use of software to insure use of each by all students	85%	79%	78%	83%
Troubleshooting problems with computers or satellite receiving equipment	42%	56%	83%	91%
Operating the satellite receiving equipment	67%	95%	72%	69%
Taping satellite broadcasts	73%	95%	93%	100%
Administering tests	100%	100%	100%	100%

Table 74 (cont.): PERCENT OF STUDENTS BY STUDENT AND COORDINATOR ASSESSMENT OF COORDINATOR DUTIES PERFORMED BY TAPED/LIVE COURSE FORMAT BY STATE

	ACCORDING TO COORDINATOR		ACCORDING TO STUDENTS	
	TAPED	LIVE	TAPED	LIVE
Grading tests (or portions of tests)	100%	100%	96%	100%
Constructing additional quizzes or worksheets to assist student learning	79%	90%	39%	71%
Identifying and solving problems individual students may be having with the course	75%	72%	70%	46%
Learning German along with the students	77%	90%	74%	43%
Watching all broadcasts with the students	60%	79%	76%	63%
Being able to answer simple questions or help students find answers quickly	94%	82%	87%	46%
Scheduling the students for on-air time as "host school"	21%	41%	72%	31%

Whether or not students valued their experience in German by Satellite can be surmised from their responses as to whether they would enroll in another instruction by satellite class. The effect of a live vs. taped format, however, appears to have little independent effect on their decision, as can be seen from Table 75 below. While the majority of students in taped classes indicated they would enroll in another course, those students in live classes gave variable responses depending upon their geographic location, i.e, there were other factors involved in their decision.

Table 75: LIKLIHOOD OF STUDENTS ENROLLING IN ANOTHER INSTRUCTION BY SATELLITE CLASS BY TAPED/LIVE COURSE FORMAT

	% of students indicating they would enroll in another instruction by Satellite course			
	TAPED		LIVE	
	Yes	No	Yes	No
MO-PURCHASED	89%	11%	75%	25%
MO-LEASED	68%	33%	50%	50%
NORTH DAKOTA	63%	37%	25%	75%
TOTAL	69%	31%	42%	58%

Little difference exists between student attitudes concerning German by Satellite based on enrollment in a taped or live class, again indicating that the independent effect of enrollment in a taped vs. live format is not in and of itself less beneficial to student satisfaction. (See Table 76)

Table 76: STUDENT ATTITUDES CONCERNING GERMAN BY SATELLITE BY TAPED/LIVE COURSE FORMAT X STATE

	TAPED			LIVE		
	Agree	Undecided	Disagree	Agree	Undecided	Disagree
Studying foreign language is interesting	91%	9%	--	89%	6%	6%
I prefer instruction by satellite over a regular class	20%	35%	46%	20%	14%	66%
I like taking responsibility for learning myself	61%	28%	11%	69%	17%	14%
It wasn't my idea to enroll in German by Satellite	17%	4%	78%	9%	11%	80%
The TV broadcasts make the course more exciting	50%	22%	28%	60%	14%	26%
I don't learn very much from the TV broadcasts	22%	26%	52%	40%	26%	34%
I like working on the computer	80%	17%	2%	71%	20%	9%

Student expectations did appear to differ by the format of the course in which they enrolled, however. Across all three student groupings, a higher percentage of "live-format" students did indicate that the course was different than they expected.

Table 77: STUDENT PERCEPTION OF WHETHER THE COURSE IS DIFFERENT THAN THEY EXPECTED BY TAPED/LIVE COURSE FORMAT X STATE

	% of students indicating the course is different than expected	
	TAPED	LIVE
MO-PURCHASED	44%	58%
MO-LEASED	67%	84%
NORTH DAKOTA	71%	100%

Generally, it appears that students in taped classes in Mo-Purchased and North Dakota schools found the course easier than did those viewing it live. Almost all Mo-Leased students, however, felt that the course was either the same or more difficult than a regular class.

Table 78: STUDENT PERCEPTION OF COURSE DIFFICULTY BY TAPED/LIVE FORMAT X STATE

	% OF STUDENTS					
	TAPED			LIVE		
	MO-IND	MO-LEASED	ND	MO-IND	MO-LEASED	ND
Easier than a regular class in the same subject	22%	0%	21%	0%	5%	0%
Harder than a regular class in the same subject	33%	67%	53%	67%	84%	100%
About the same difficulty level as a regular class in the same subject	45%	33%	26%	33%	11%	0%

VII. ADMINISTRATOR AND PARENT PERCEPTIONS REGARDING THE FUTURE OF INSTRUCTION BY SATELLITE

With all new educational programs comes the need to regulate and accredit for district implementation. Administrators were asked to assess who *they* felt was in the best position to set standards and/or accredit instruction by satellite courses. While Mo-Purchased and North Dakota districts preferred accreditation be housed with individual state departments of education or a national or regional accreditation agency, Mo-Leased schools showed a significant preference for the decision to be made by individual school districts.

Table 79: ADMINISTRATOR ASSESSMENT OF WHO IS IN THE BEST POSITION TO SET STANDARDS AND/OR ACCREDIT INSTRUCTION BY SATELLITE COURSES X STATE

A National or regional entity, such as North Central Accreditation Agency:	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
RANKED 1ST	34%	--	46%
RANKED 2ND	--	12%	--
RANKED 3RD	16%	33%	29%
RANKED 4TH	--	25%	7%
UNRANKED	50%	29%	17%

A National or regional joint accreditation committee formed by members of various state departments of education:	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
RANKED 1ST	9%	25%	--
RANKED 2ND	48%	20%	24%
RANKED 3RD	2%	12%	39%
RANKED 4TH	--	14%	20%
UNRANKED	41%	29%	17%

Individual state departments of education:	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
RANKED 1ST	36%	31%	49%
RANKED 2ND	23%	69%	5%
RANKED 3RD	16%	--	--
RANKED 4TH	16%	--	46%
UNRANKED	9%	--	--

Individual school districts:	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
RANKED 1ST	20%	43%	5%
RANKED 2ND	--	--	71%
RANKED 3RD	16%	25%	15%
RANKED 4TH	34%	31%	10%
UNRANKED	30%	--	--

Likewise administrators were asked their opinion of which of the following activities should be carried out by State Departments of Education or Public Instruction. Mo-Purchased and North Dakota administrators were much more likely to believe that State Departments should be providing technical assistance to school districts implementing instruction by satellite courses. North Dakota administrators, however, were more likely to believe that the role of the State Department should encompass *all* of the activities listed. Mo-Leased administrators were somewhat more likely to downplay the role of the State Department in all aspects of Instruction by Satellite.

Table 80: ADMINISTRATOR OPINION OF WHICH ACTIVITIES SHOULD BE CARRIED OUT BY STATE DEPARTMENTS OF EDUCATION BY PERCENT OF STUDENTS AFFECTED X STATE

	MEAN RATING ON SCALE FROM 1= STRONGLY AGREE TO 5 = STRONGLY DISAGREE*		
	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
Providing technical assistance to school districts implementing instruction by satellite courses	1.8	2.7	1.7
Administering technology grant funds to applicant districts	1.4	1.9	1.2
Establishing certification requirements of course coordinators	2.4	2.1	1.6
Accrediting providers of instruction by satellite courses	1.9	2.1	1.7
Evaluating individual instruction by satellite course content for accreditation purposes	2.2	2.0	1.8
Monitoring school districts for compliance with satellite course implementation standards	2.4	2.3	1.7
Collecting evaluation information from adopting districts in order to share with other districts	2.1	2.5	1.5
Providing school districts with cost and vendor information on satellite course and equipment providers	2.0	2.3	1.2

* EXPLANATION: The lower the mean ranking the greater the agreement with the statement.

It is very interesting to note, that in spite of some very candid explanations of problems with the course, *all* administrators felt the role of distance learning technologies would be *increased* in their schools. This would seem to indicate that, while problems existed, the administrators felt that they could be overcome or eliminated, therefore not decreasing the widespread role of the technology.

Table 81: ADMINISTRATOR PERCEPTION OF FUTURE ROLE OF DISTANCE LEARNING TECHNOLOGIES IN THEIR SCHOOL BY PERCENTAGE OF STUDENTS AFFECTED X STATE

	MO-PURCHASED	MO-LEASED	NORTH DAKOTA
Increased role	100%	100%	100%
Decreased role	0%	0%	0%
Nonexistent role	0%	0%	0%

Factors which the administrators considered as limiting *their* schools in making greater use of distance learning technology in the future can be seen in Table 82 below. While some North Dakota districts saw consolidation or cooperative hiring of teachers as inevitable, all districts across both states believed the need for distance learning would continue to exist.

The school district budget, lack of outside funds to expand usage, and the imposed policies and regulations of State Departments were considered to be the primary limiting factors to greater use of distance learning technology across both states. Mo-Purchased districts were much more likely than other districts to see the lack of distance learning courses in needed subject areas as a limiting factor. The quality of distance learning instruction was considered as a limitation to greater use by some adminstrators.

Table 83: ADMINISTRATOR PERCEPTION OF FACTORS WHICH WILL SIGNIFICANTLY LIMIT THEIR SCHOOL IN MAKING GREATER USE OF DISTANCE LEARNING TECHNOLOGY IN THE FUTURE BY PERCENTAGE OF STUDENTS AFFECTED X STATE

	MO-PURCHASED		MO-LEASED		NORTH DAKOTA	
	Yes	No	Yes	No	Yes	No
State Department of Education policy and regulations	68%	32%	39%	61%	66%	34%
Lack of distance learning courses in needed subject areas	70%	30%	14%	57%	37%	63%
The cost of equipment maintainance and upkeep	25%	75%	41%	59%	49%	51%
The quality of distance learning instruction	23%	77%	49%	51%	37%	63%

Table 83 (cont): ADMINISTRATOR PERCEPTION OF FACTORS WHICH WILL SIGNIFICANTLY LIMIT THEIR SCHOOL IN MAKING GREATER USE OF DISTANCE LEARNING TECHNOLOGY IN THE FUTURE BY PERCENTAGE OF STUDENTS AFFECTED X STATE

	MO-PURCHASED		MO-LEASED		NORTH DAKOTA	
	Yes	No	Yes	No	Yes	No
The obsolescence of existing equipment	0%	100%	29%	71%	20%	80%
The school district budget	73%	27%	55%	25%	68%	32%
The attitude of the school board about technology	9%	91%	14%	86%	0%	100%
Lack of outside funds to expand usage of distance learning courses	64%	36%	67%	33%	68%	32%
Consolidation will eliminate the need for it	0%	100%	0%	100%	32%	68%
Cooperative hiring of teachers among districts will eliminate the need for it	0%	91%	0%	100%	32%	68%
Teacher surpluses will eliminate the need for it	0%	100%	0%	100%	0%	100%
The need for distance learning courses will cease to exist	0%	100%	0%	100%	0%	100%

* A "no response" category was not included in this table, therefore totals will not always equal 100%.

Additional insights into administrator perceptions of the future of instruction by satellite can be gained by viewing their responses to the needs which they see instruction by satellite as serving. All superintendents saw the long-term needs for expanding the curriculum offerings of small schools as being served by instruction by satellite. A significant number, however, did see the possibility of other technologies taking its place. North Dakota administrators, who were much more likely to feel the threat of consolidation, were much more likely to see instruction by satellite as a means for its avoidance or delay. All administrators shared the view of instruction by satellite as a source of supplemental course material for larger districts and as a means of teacher in-service training in smaller districts.

Table 84: ADMINISTRATOR PERCEPTION OF THE NEEDS WHICH THEY SEE INSTRUCTION BY SATELLITE SERVING BY PERCENTAGE OF STUDENTS AFFECTED X STATE

	MO-PURCHASED		MO-LEASED		NORTH DAKOTA	
	Yes	No	Yes	No	Yes	No
A long-term need for expanding the curriculum offerings of small schools	100%	0%	100%	0%	100%	0%
A short-term need for curriculum expansion until other technologies are more widely available	55%	36%	59%	41%	68%	32%
As a means for small schools to avoid or delay consolidation	52%	48%	71%	29%	83%	17%
As a source of supplemental course material for larger school districts	100%	0%	100%	0%	100%	0%
As a means of teacher in-service training in small districts	100%	0%	100%	0%	100%	0%

Finally, administrators were asked their opinion of the future of Instruction by Satellite by indicating their agreement or disagreement with selected statements (Table 85). Mo-Purchased administrators were most likely and Mo-Leased administrators were least likely to believe that instruction by satellite is a quality and cost-effective method of providing upper-level courses. Only in North Dakota was there a significant feeling that instruction by satellite was a stop-gap measure until qualified teachers could be found. Missouri administrators, on the other hand, were much more likely to be undecided on the issue of whether instruction by satellite would ultimately be used to teach many more types of courses. North Dakota administrators saw the technology more in terms of provision of credit courses than did administrators in Missouri, where a higher percentage saw it as more useful for enrichment and teacher in-service training.

As would have been expected, North Dakota superintendents were more likely to see instruction by satellite as a means for small schools to avoid or delay consolidation . (Table 84) This is a logical reaction given that the average, K-12 enrollment for Instruction by Satellite schools in North Dakota is 328, whereas the mean enrollment is 720 in Mo-Purchased districts. Mo-Leased districts, however, were considerably larger on the average, with a mean, K-12 enrollment of 1010. (Table 86 shows K-12

enrollment means, medians, and ranges for each category of schools.) A note of interpretation--Mo-Leased administrators, because their schools are much larger in size, are presumably expressing opinions about schools smaller than themselves. Their response in Table 85 can be interpreted as their projection of the effect of instruction by satellite on small school consolidation. Mo-Purchased districts, on the other hand, are predominantly small themselves, but most are not small enough to fear the direct threat of consolidation nor do they see instruction by satellite as being responsible for their continued existence. For the most part, however, North Dakota districts having implemented instruction by satellite are very small and are directly concerned with forced consolidation. They see an opportunity in instruction by satellite for helping to meet legislated curriculum standards which they are unable to meet on their own through traditional delivery systems. While consolidation affects much more than the ability for local school control, perhaps no effect is more important than the school's contribution to community viability. This continues to be a topic which warrants further research and documentation.

Table 85: ADMINISTRATOR OPINION OF THE FUTURE OF INSTRUCTION BY SATELLITE

It is here to stay; it is a quality and cost-effective method of providing upper-level courses:

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
MO-PURCHASED	55%	34%	11%	--	--
MO-LEASED	14%	75%	--	12%	--
NORTH DAKOTA	32%	51%	17%	--	--

Other technologies such as Interactive TV will most likely take its place:

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
MO-PURCHASED	--	--	84%	16%	--
MO-LEASED	--	14%	25%	61%	--
NORTH DAKOTA	--	19%	49%	32%	--

Table 85 (cont): ADMINISTRATOR OPINION OF THE FUTURE OF INSTRUCTION BY SATELLITE

It is a stop-gap measure until qualified teachers can be found or hired:	Strongly Agree	Agree	Unde-cided	Dis-agree	Strongly Disagree
MO-PURCHASED	--	9%	20%	68%	2%
MO-LEASED	--	--	14%	86%	--
NORTH DAKOTA	--	20%	10%	71%	--
It will ultimately be used to teach many more types of courses:	**Strongly Agree**	**Agree**	**Unde-cided**	**Dis-agree**	**Strongly Disagree**
MO-PURCHASED	11%	68%	20%	--	--
MO-LEASED	12%	43%	45%	--	--
NORTH DAKOTA	20%	78%	--	2%	--
Satellite technology is probably more useful for enrichment viewing and teacher in-service training than for stand-alone credit courses:	**Strongly Agree**	**Agree**	**Unde-cided**	**Dis-agree**	**Strongly Disagree**
MO-PURCHASED	11%	36%	9%	43%	--
MO-LEASED	--	43%	20%	37%	--
NORTH DAKOTA	10%	17%	7%	66%	--
Satellite technology will very likely be responsible for the continued existence of many small schools:	**Strongly Agree**	**Agree**	**Unde-cided**	**Dis-agree**	**Strongly Disagree**
MO-PURCHASED	27%	32%	9%	32%	--
MO-LEASED	14%	75%	--	12%	--
NORTH DAKOTA	--	73%	24%	2%	--

Table 85 (cont): ADMINISTRATOR OPINION OF THE FUTURE OF INSTRUCTION BY SATELLITE

State departments of education view instruction by satellite as a threat to their sovereignty:	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
MO-PURCHASED	--	43%	30%	27%	--
MO-LEASED	--	75%	14%	12%	--
NORTH DAKOTA	46%	--	12%	41%	--

Table 86: SCHOOL SIZE (ENROLLMENT) STATISTICS FOR SCHOOLS HAVING IMPLEMENTED GERMAN I BY SATELLITE

	K-12 ENROLLMENT STATISTICS		
	MEAN	MEDIAN	RANGE
MO-PURCHASED	720	300	120-2910
MO-LEASED	1010	906	246-2348
NORTH DAKOTA	328	302	134-601

Parent perception of the future of instruction by satellite and other distance learning courses (Table 87) seems to indicate a generally postive outlook coupled with a great amount of indecision. Only in Mo-Leased schools, did a significant percentage of parents view the technology negatively, presumably because of the negative experiences their children had had in the class.

Table 87: PARENT PERCEPTION OF THE FUTURE OF INSTRUCTION BY SATELLITE AND OTHER DISTANCE LEARNING COURSES X STATE

	POSITIVE RESPONSE	DON'T KNOW/ NOT SURE	NEGATIVE RESPONSE
MO-PURCHASED	68%	32%	0%
MO-LEASED	54%	29%	17%
NORTH DAKOTA	55%	42%	3%
TOTAL	100%	100%	100%

VIII: CONCLUSION

When considering the traditional measures of school success--grades received and achievement test scores earned--North Dakota students along with students in Missouri districts having purchased their own equipment consistently out-performed those students in Missouri schools having leased the satellite equipment. Certainly while there is no inferred causation between equipment purchase or lease *and* student success, it is clear that the course implementation practices of leasing and purchasing districts were very different. In North Dakota, where all equipment was purchased, and in Missouri districts purchasing their own equipment, the role of the classroom coordinators of German I by Satellite was much more likely to include coordination of and assistance with software use, watching all broadcasts with the students, encouraging student interaction with the instructor, learning German along with the students, troubleshooting equipment, answering or finding answers to simple student questions, providing additional quizzes or worksheets, solving individual problems, and assisting with use of the modem. In addition, the person serving as coordinator in Mo-Purchased and North Dakota schools was much more likely to have received training in operation of satellite receiving equipment, computer operation, software and modem use, while Mo-Leased coordinators were more likely to have received written guidelines. Software use, as intended by Oklahoma State University, is an integral part of the course. However, Mo-Leased districts were much less likely to use each of the four software programs, either because they were not purchased (in the case of Dasher), because the necessary computer peripheral equipment was not purchased or was not used, or because the coordinator did not require or facilitate student software use.

North Dakota students did not initiate interaction with the German instructor either electronicly by modem or by phone to the extent that Missouri students did, however, while all students in North Dakota and Mo-Purchased schools had *some* direct contact with the instructor, there were 27% of the students in Mo-Leased schools who had *no* apparent instructor contact.

Mo-Purchased schools were most likely to have modified their bell schedule to accomodate the instruction by satellite broadcast times.

While the above factors are all "school-dependent" to a large extent, there is another series of factors which are "student-dependent".

North Dakota students enrolled in the instruction by satellite course

were much more normally distributed with respect to GPA, i.e., there were no "ability" restrictions placed on students enrolled, as there were in some Missouri districts. In addition, over half of the students enrolled in North Dakota were seniors, while over half of the students in Mo-Lease schools were ninth or tenth graders. Mo-Purchased schools were predominantly eleventh and twelfth graders.

Missouri students were much more likely to believe that the German course was needed for college than were North Dakota students. A higher percentage of Mo-Leased students reported previous experience in foreign language classes, but Mo-Purchased students reported spending significantly more time studying outside of class. Mo-Leased students reported the least amount of study time spent.

The success of students as measured by achievement test scores is *inversely* related to the total cost incurred by the school in implementing the course. However, methods and degree of implementation varied enormously across districts, with higher costs not necessarily inferring greater or more thorough implementation of course components.

Parent, student, administrator and coordinator attitudes on most variables paralleled student achievement scores, that is, attitudes in schools in which tests scores were higher were generally more positive. Mo-Leased students were much more likely to say the course was harder than a regular course in the same subject. Their parents, however, did not share their view.

Instruction by satellite was seen by a much higher percentage of Mo-Purchased parents as allowing the school to offer classes it could not otherwise offer. Mo-Purchased parents were also more likely to believe that the course required students to take more responsibility for their own learning. Mo-Leased parents were more likely to believe that the course was more frustrating for students because they couln't always get their questions answered.

Coordinators in Mo-Leased schools were more likely to believe that students dropped the course because it was too difficult; Mo-Purchased and North Dakota coordinators were more likely to cite student concern about the class lowering their GPA or class rank as the primary reason for students dropping the class.

All Mo-Leased coordinators believed there were aspects of the course which needed improvement, while only approximately half of the coordinators in Mo-Purchased and North Dakota schools felt so.

Superintendents in Mo-Purchased districts expressed more favorable attitudes toward German by Satellite than did other superintendents.

They were similarly more likely to report the attitudes of their school board, faculty, and course coordinator as "strongly favorable". Administrator assessment of parent attitudes in North Dakota was much more favorable than in other schools, however, superintendents' assessment of their own attitudes were somewhat less favorable than in other districts.

The superintendents of Mo-Leased schools indicated much less satisfaction with most aspects of the course, including costs, equipment upkeep/ maintainence, ease of equipment operation, quality of instruction, level of difficulty, ease of supervision, course content, outside technical and course support, and technical reliability of the equipment than did other superintendents. Attitudes of Mo-Leased administrators did not necessarily parallel those of the coordinators, students or parents, however. This may perhaps indicate a somewhat more removed administrative role in Mo-Leased schools from the day-to-day operation of the course. This would be consistent with expectations when taking the size of school into account, i.e., Mo-Leased schools tended to be larger than other participating schools.

North Dakota administrators were less likely to be satisfied with the amount of knowledge gained by GBS students even though North Dakota students clearly surpassed Missouri students in knowledge gained (as measured by the achievement test). Certainly not borne out by data at this point, a hypopthesis may be that expectations for students are somewhat higher in North Dakota than in Missouri. Contributing further to this hypothesis is the higher percentage of North Dakota students believing the course is *easier* than a regular class and that there is less homework involved.

The study's findings are inconclusive, at this point, regarding the relationship between student success and whether the course broadcasts are viewed live or by delayed videotape. It appears that while there may be a disadvantage to students participating in a videotaped course, the disadvantage can be overcome with the diligent implementation of other course components. This issue will be dealt with further in the context of a multivariate analysis as part of REPORT III.

Participating administrators generally agreed that the future of instruction by satellite was based on the long-term need for expanding the curriculum offerings and providing teacher in-service training in small districts, while serving as a source of supplemental course material for larger districts. More than half of the administrators agreed, however, that instruction by satellite may be serving a short-term need for

curriculum expansion until other technologies become more widely available. Only in North Dakota did the superintendents believe that cooperative hiring of teachers among districts may eliminate the need for it. Mo-Leased districts were more likely to consider the technology as more useful for enrichment viewing and teacher in-service than for stand-alone credit courses. The effect of distance learning technology on consolidation and therefore on the continued existence of many small schools was clearly much more of "live" issue in North Dakota, where the mean enrollment size was below 330 in grades K-12.

In summary, it does appear that there are certain implementation and other "school-dependent" factors associated with student success in German by Satellite which were not uniformly put into place across all participating districts. It appears that, among the various factors involved, the extent of the role of the coordinator and the use of intended software are critical to student success. It is less clear, however, the extent to which any omitted or poorly implemented course components can be overcome within the context of the school. Furthermore, the singular effect of "student-dependent" factors, such as ability or grade level is not clearly evident, nor is the interaction between student ability or maturity and erratic implementation of course components evident within the confines of the current analysis.

In order to pursue these currently unanswered questions, a multivariate analysis will be conducted utilizing the existing data. Two major outcomes of this further analysis are proposed: (1) A delineation of each "school-dependent" and "student-dependent" variable as an independent predictor of student success; and (2) a set of recommendations to adopting districts concerning crucial factors in course implementation and/or student selection.

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